

THE IRON AGE

New York, October 25, 1923

ESTABLISHED 1855

VOL. 112, No. 17

Automatic Conveying in Material Handling*

Vertical Units and Various Types of Horizontal Conveyors
in Intensive Use in National Cash Register
Works—Factory Parcels Post

BY L. S. LOVE

HANDLING of materials in a plant the size of the National Cash Register Co. is naturally an item of tremendous cost, including as it does everything from raw materials incoming to the finished product going out.

A large number of electric industrial trucks is employed. These are used for handling raw materials from the incoming inspection department, where all materials purchased are inspected before distribution. After inspection the various materials for stock are delivered to stockrooms in the basements of the buildings in which a given class of stock receives most of the operations on it. To facilitate this delivery and all other interbuilding communication, tunnels connect

all buildings of the plant. There are 14 miles of such tunnels. This avoids to a great extent unsightly bridges and use of the streets for company business.

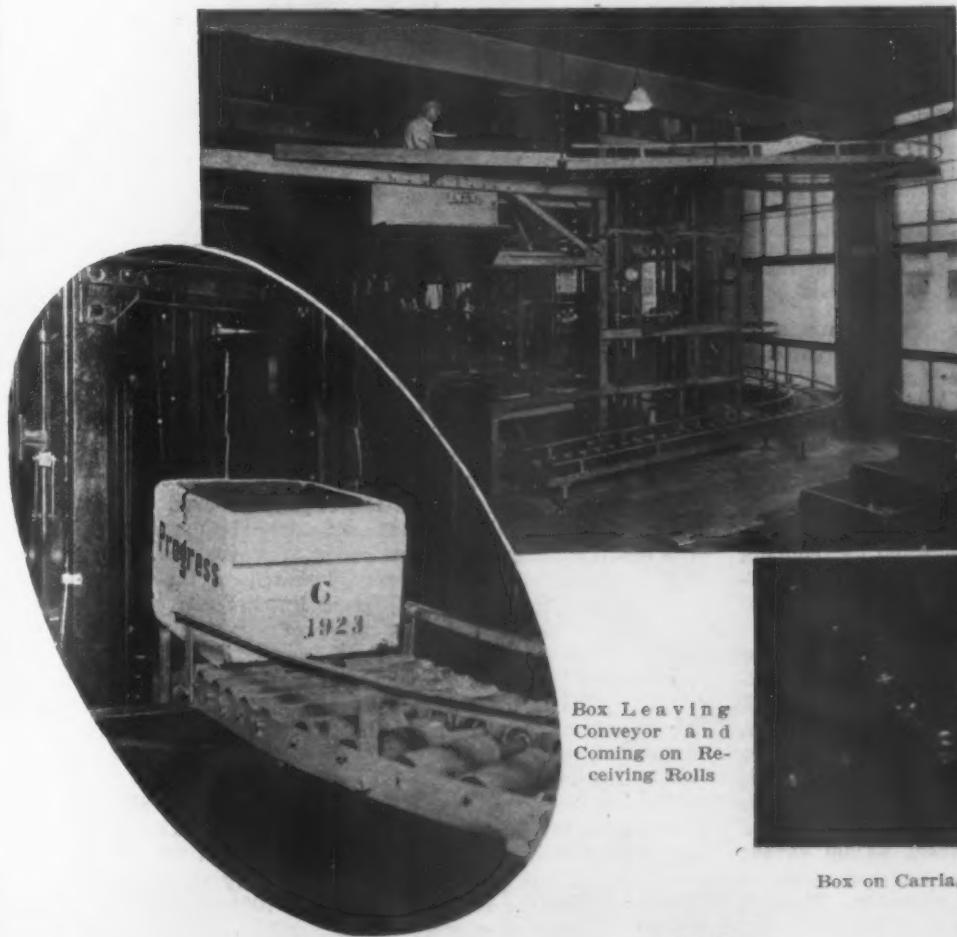
Trucks are also used for messenger service, such as the delivery of tools to workmen, and for interdepartment trucking of much material in process.

Industrial Trucks Used for Plant Parcel Post

There is also a regular parcel post system employing special trucks with box bodies developed by the National Cash Register Co., containing drawers for holding matter to be delivered and designated for the various departments. There are parcel post stations for these trucks to visit, which they do on a regular schedule of 2 min, from station to station. These stations have drawers and racks, marked for holding goods to go to different departments, all corresponding to the

*Tool making as practiced in the National Cash Register plant was described in the issue of Sept. 13 and the making and maintenance of machinery were described in the issue of Aug. 30.

At the Transfer Station at the Automatic Vertical Conveyor in Each Building (Left), the Man Handles More Stock Than Any Three Persons in the Entire Factory and Likes It. It is easier than jolting around on a motor truck and wrestling boxes



Box Leaving Conveyor and Coming on Receiving Rolls



Box on Carriage Prepared to Go on Conveyor

drawers on the trucks. There are four trucks in this service.

The plant has a garage for all electric industrial trucks. In this is a charging board which charges all trucks nightly. When the batteries are fully charged, the board automatically cuts out, so there is no danger of overcharging.

The most valuable improvement in material handling is in the conveyor system and the development of the automatic conveyor which has greatly reduced transportation costs. The former use of industrial trucks was a tremendous saving over the old fashioned hand trucking methods. The National Cash Register Co. realized, however, that from the time raw material left the stockroom until it took the form of finished product, it was in actual process only about one-third of the time. This work in process was really "loafing" two-thirds of the time and cut tremendously into profits. Further, floor space which might be used for production was required for aisles and storage platforms for

75 per cent of it is in the four buildings where the automatic conveyors are installed.

The idea of the conveyor was first conceived in 1915 but due to the war the first installation was not made until 1920. At present there are $1\frac{1}{4}$ miles in use, handling 1500 boxes per hr. This includes vertical conveyors, belts, gravity rolls, steel chutes, 35 deg. inclined push bar boosters, 63 sending stations and 49 receiving stations. A transfer station in each building handles material on the vertical section; it unloads automatically.

Before proceeding to a description of the arrangement of belt conveyors and their feeders and the vertical automatic conveyors, it may be well to describe the simpler conveyors first. These are in the shipping department.

After final inspection the registers pass along a set of gravity rolls for supplies, covers, etc., and to have the handles removed and for weighing. They are then transferred to a packing stand. Packing cases already



Transfer Station at the Third Floor of Building No. 1

materials waiting to be conveyed to other departments.

Time is saved between operations, saved through avoiding congestion in aisles, through more expeditious delivery of stock to the various departments, whether for regular production or for special right of way material. About 14 hr. per day formerly lost is saved on trucks waiting for elevators, as the conveyor is always there to take stock. Wear and tear and other loss is saved on floors, partitions and doors and damage from vibration is reduced. Savings are effected by reducing the number of shop boxes by one-fourth and by eliminating the upkeep and cost of operation of many trucks and some elevators.

There are savings in number of men needed as material chasers under the old system. As concrete examples, the following might be mentioned: Out of 223 hr., 26.35 were operating hours and 196.65, lost; 14 hr. per day waiting on elevators at 50 cents per hour; 12,240 sq. ft. aisles and 1532 sq. ft. platforms saved; 21,000 shop boxes at \$1.20 and upkeep on them saved; interest on \$36,381 invested in unnecessary trucks and elevators saved; cost of operating them, \$4,200, saved; these figures together with other savings mentioned on a conservation basis show \$100,000 annually. There is about \$600,000 of material in process at all times and

made are brought up to the second floor or packing floor from the basement on a 35-deg. inclined bar booster to a line of rolls. Provision is made for safety in case of a jam; if the receiving rolls are filled, two electric contact switches properly placed provide a double check.

The iron packing stand on which cases are nailed is operated by air, which raises it to the truck level for easy transfer. When nailed the case is trucked to a spiral chute and delivered to the first floor for marking. It is again weighed on a scale in the conveyor line and then proceeds to an air operated switch in the line which diverts the boxes to different lines of conveyors for different destinations, or ways of shipment; one leads to "express," one to "West," one to "New York" and one for "foreign" shipment. These lines lead directly to cars on the siding. Where the rolls cross the floor aisles, a special form of short crowned rolls set in corrugated steel plates serves to convey the cases but is safe to walk over.

This department handled 65 cases in June, 1885, with a total for the year of 514. In October, 1913, the record day's shipment was 14,447, and a total for the year, 145,020. Registers packed for factory stock are diverted to another set of rolls, 6000 to 7000 being carried in this way as average stock.



Roller Conveyor
in Final Inspection
Department



Looking Down the 35-Deg. In-
cline Booster Which Lifts Boxes
from Basement to Second Floor



(At Left) Air Operated Switch
in Traffic Department



Packing Block and Conveyor Rolls in Final Inspection
Department

Booster and Chute in West End of Stock B Department of
Building No. 4



From the Final Inspection Registers Proceed to
the Packing Department to Which Boxes Are
Delivered On a Push Bar Booster. Here are
air elevated nailing stands from which the boxed
registers are loaded on trucks to be dropped
down a chute to the shipping floor where an air
operated switch diverts them for shipment



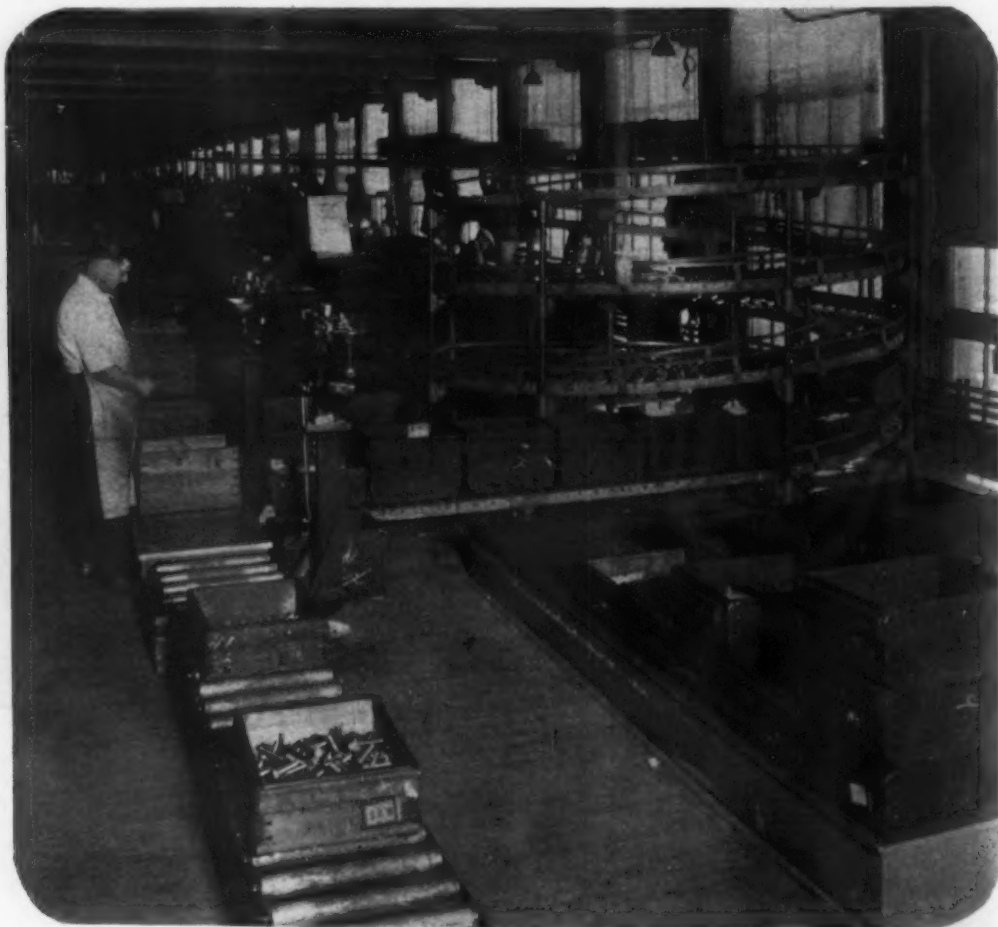
Air Hoists Raise Boxes to the Overhead Horizontal Belt Conveyors. Boxes slide off the hoist to one belt or the other, depending upon the desired direction of travel, to govern which the hoist is set by a regulator

With the use of the automatic vertical conveyor has come a standardization in shop boxes. There were formerly in use 15,000 to 18,000 miscellaneous odd sizes. Now there are two, 15 x 18 in. and 6 in. and 12 in. high. They are made of 13/16-in. lumber and are all numbered. Trays to fit in the boxes are also standardized,

making them interchangeable. Stock bins have also been standardized.

There are four automatic vertical conveyor installations in the plant, one each in buildings Nos. 1, 2, 3 and 4. Each single unit consists of a pair of link chains extending from the bottom floor to the top of the build-

From One Transfer Station Material to Be Inspected Is Delivered to a Gravity Conveyor With Spiral Descent to Floor, Serving Also for Storage if the Boxes Come Faster Than the Inspector Can Care for Them



ing. The chains operate over sheaves and run at rates of 60 to 75 ft. per min., there being five speed adjustments in this range. In some of the buildings the installation consists of a pair of the units, there being seven units in the four buildings. A $7\frac{1}{2}$ -h.p. motor runs each vertical unit. The entire conveyor outfit consumes under actual test only 39 h.p., although $104\frac{1}{2}$ h.p. is available. This includes verticals, boosters and belts.

Spaced at intervals of 8 ft. on the chains is a carriage or car consisting essentially of a pair of hangers, one suspended from each chain and a pair of angles forming a shelf so spaced that one leg of the angle holds the box, the other leg acting as a fence at the side of the box. The back of the shelf or angle ends is connected by a cross-tie to hold the box at the rear.

In each building is a transfer station, which receives and dispatches boxes from and to the horizontal belt conveyors. As a box reaches the transfer station, the transfer man notes by a card on the box its destination. He places it on a loading carriage which slides out by gravity, placing the box between the chains where the conveyor carriage which straddles the loading carriage will pick it up and carry it along.

An automatic unloading trip is set by the transfer operator, who controls it by an adjustable regulator placed adjacent to the loading carriage. Setting this lever at the proper notch for the floor destination for the box causes an unloading carriage to trip at the proper floor, pushing the box onto unloading rolls. The loading carriage is operated by compressed air. Interference is provided against for any contingency. When a box is on the loading carriage and the regulator set for unloading, the loading carriage deposits it in the first conveyor carriage which comes up. Should that carriage be carrying a box, a stop holds the loading carriage air valve from functioning and it waits until the first empty conveyor carriage comes along. Each unit of the vertical conveyor has a capacity to handle 960 boxes per hour.

A further precautionary measure is a circuit breaker which automatically stops the motor should boxes jam for any reason. The motor may be started again by a push button.

The horizontal belt conveyors, which are hung from the ceilings and travel at 80 ft. per min., are for the purpose of transferring boxes from one building to another, where they may be distributed to the proper floor by the vertical unit. In addition, in one building is an extra gravity roller conveyor which takes material to what is known as Inspection B. Boxes arriving faster than the inspection force can care for them collect in a spiral portion of this conveyor which serves to lower boxes from the ceiling height to floor level. This spiral has a capacity to hold 140 boxes at once. The conveyor has a drop of $2\frac{1}{4}$ in. in 10 ft. The inspector weighs two pieces and checks the contents of the box.

In one of the buildings is a transfer station which has ten conveyor lines to handle. This station is used on stock distribution.

As the belt conveyors are hung from the ceiling it is necessary to have convenient means placed along the floor to deliver boxes to the belt, and the proper belt, these being in pairs, for opposite directions of travel. The delivery is accomplished by a hoist, air operated. The hoist has rollers in its base so placed in their bearings that they tilt from the center. A pin at each end of the hoist holds the box in the hoist, until one pin or the other is withdrawn, permitting the box to roll to one belt or the other. The pin withdrawal is controlled by a regulator which is set by the hand loading the box on the hoist. Should there be a box on the conveyor approaching the hoist, an interlocking device prevents the release of the box on the hoist until that on the belt has passed.

A competitive examination for supervising draftsman to fill a vacancy in the Public Works department at Balboa, Canal Zone, has been announced by the United States Civil Service Commission, Washington, to which application should be made prior to Nov. 27.

Record Performance of Freight Haulage

WASHINGTON, Oct. 19.—Freight traffic during the first eight months this year was the heaviest in the history of the United States, according to reports for that period filed today by the carriers with the Bureau of



The Loading Carriage at the Transfer Station Is Air Operated. It is provided with interlocks to avoid loading to a conveyor carriage which already contains a box. In case of congestion the conveyor stops automatically and is started by a push button when the congestion is cleared. The installation indicates the completeness of the National Cash Register system

Railway Economics. Measured in net ton miles, it amounted to 304,267,000,000 net ton miles. This was an increase of 3.6 per cent over the corresponding period in 1920 which marked the previous record and $5\frac{1}{2}$ per cent greater than the first eight months in 1918 when freight traffic was greatly stimulated by the war.

The average load per car in August was $28\frac{1}{2}$ tons, the same as in July. This is the highest average for any August since the compilation of these records was started in 1917, except in 1918 when the average was 30.1 tons and August, 1920, when it was 29.8 tons.

The average daily movement per freight car during the month of August was 28.2 miles which was an increase of $\frac{2}{5}$ mile over that for July this year and the highest for any August since the compilation of these records began in 1917, exceeding by $\frac{4}{5}$ mile the average for August, 1920, and $2\frac{1}{5}$ miles the average for August, 1918.

In computing this average movement per day, account is taken of all freight cars, including all cars in transit, cars in process of being loaded and unloaded, cars undergoing repairs, also cars on side tracks, either awaiting repairs or for which no load is immediately available.

Domestic sales of oak leather belting for September are reported by the Leather Belting Exchange, representing about 60 per cent of the total product, at 416,510 lb., valued at \$783,871, or an average of \$1.88 per lb. This compares with 466,258 lb., \$881,228 and \$1.89 per lb. in August and with 475,380 lb., \$797,213 and \$1.68 per lb. in September, 1922.

TRADE INFORMATION

Important Possible Effects of Consent Decree by the Attorney General

WASHINGTON, Oct. 22.—Officials of trade associations interested in the gathering of trade information and market data have been advised of the possible effects of the proposed consent decree of the Attorney General against the Tile Manufacturers' Credit Association through a notice sent out by Nathan Williams, associate counsel of the National Association of Manufacturers.

The Department of Justice proposes to enjoin the Tile Manufacturers' Association from collection of certain types of statistical and other information, a move which is regarded as detrimental to industry in that it may prove an entering wedge for legal action against other trade associations.

Mr. Williams has advised executives of trade associations that the proposed consent decree which would provide, however, that the Tile Manufacturers' Credit Association and others named as defendants might receive and compile, for transmission to any Government agency, such information and statistics as such agency might request as to production, stocks on hand and prices. Such associations would be restrained from distributing information so collected among its members. The permissive features of the proposed decree follow the general lines of the consent decree entered in the case of the Gypsum Industries Association, which made no mention of the subject of statistics.

Because of its possible effects upon the activities of the trade associations generally, Mr. Williams held two conferences this week with A. T. Seymour, assistant to the Attorney General. He urged that in the public interest the draft of the decree be modified by the elimination of all reference to Government departments. Contention was also made that the collection of information by Government departments is properly controlled by statute. It was further urged that in the description of permissible activities of trade associations that cost accounting be included.

In his conference with Mr. Seymour, Mr. Williams made it clear that American industry depended upon accurate business information. He said there would

be "serious consequences to the business fabric if the proposed decree should be entered in its present form. In our opinion, such a decree would, in effect, serve notice upon all trade associations that the Department of Justice regards the collection of statistical and other trade information, because occasionally misused, within the condemnation of existing law, and to be prohibited in so far as the Department of Justice was able to accomplish that end."

Southern Metal Trades Association

Before the Texas division of the Southern Metal Trades Association at Galveston, J. H. Dore of Houston gave a talk on migration and immigration, referring particularly to the negro migration to Northern cities from many parts of the South. He said that Texas has not yet been very much affected by the migration and he urged that manufacturers do all in their power to improve the conditions of the negroes in the South, particularly in giving them better opportunities for education along industrial lines and for better housing and living conditions. He urged that such a policy would be wise for financial reasons as well as from a moral and religious standpoint.

W. C. Trout, vice-president and general manager Lufkin Foundry & Machine Co., Lufkin, Tex., brought up the subject of freight roads west of the Mississippi that particularly affect the foundry industry in Texas, holding that they have some unjust features. A committee was appointed, consisting of W. C. Trout, chairman; W. S. Mosher of Dallas, George Holmgren of San Antonio, James H. Dore of Houston, and J. L. Black of Beaumont, to take up the matter with a view of getting rates properly adjusted.

A number of members participated in an informal discussion at the luncheon and a most friendly feeling among competitors was manifested. The importance of bringing about results through association work was urged.

F. H. Elmer, superintendent Lucey Steel Foundry, Houston, gave a practical talk on "Kinks in the Steel Foundry." V. K. Terry of Lufkin read a paper on "An Apprentice System for Skilled and Executive Help."

The association is using its influence to the utmost to encourage its members to produce high grade castings and to adopt cost systems which will enable them to know the real cost of manufacturing. W. S. Mosher, Dallas, and others spoke on the importance of perfecting organization work; and in order to form a closer and more efficient organization, it was decided to hold a meeting Nov. 17 at Waco.

Unemployment Insurance

That legislation like England's unemployment insurance measures probably will never be needed in the United States is the opinion of economists of the National Industrial Conference Board, New York. Economists returning from Europe have commented recently on the unsatisfactory condition of the workers in the United Kingdom, and former Premier Lloyd George in a statement recently in New York confirmed this view. Government doles and insurance against unemployment in the United Kingdom are in contrast with recent developments in American industry, where the workers and their employers have joined hands to insure an all-year-round wage.

Notable among these developments the board cites the Procter & Gamble Co., Cincinnati, which has virtually guaranteed continuous work to its employees. Likewise, the garment workers and their employers in Chicago have reached an arrangement whereby unemployment benefits will be shared by over 35,000 men and women, both workers and employers contributing toward this arrangement.

The Federal Trade Commission has set Oct. 31 as the date to begin hearing in the Bethlehem-Midvale merger case. Proceedings will take place at Washington, New York, Boston, Philadelphia and Buffalo.

COMING MEETINGS

October

National Association of Farm Equipment Manufacturers. Oct. 24, 25 and 26. Thirteenth annual convention, Statler Hotel, Cleveland. J. B. Bartholomew, Peoria, Ill., president.

American Welding Society. Oct. 24, 25 and 26. Fall meeting, Pittsburgh. M. M. Kelly, 33 West Thirty-ninth Street, New York, secretary.

American Iron and Steel Institute. Oct. 25, fall meeting in New York; Oct. 26, visit to Aberdeen Proving Ground, Md. E. A. S. Clarke, 40 Rector Street, New York, secretary.

Society of Automotive Engineers. Oct. 25 and 26. Production meeting at Cleveland. Coker F. Clarkson, 29 West Thirty-ninth Street, New York, general manager.

American Gear Manufacturers' Association. Oct. 25, 26 and 27. Fall meeting, Mountain House, Lake Mohonk, N. Y. T. W. Owen, 2443 Prospect Avenue, Cleveland, secretary.

American Management Association. Oct. 29 to Nov. 1. Annual convention, Hotel Astor, New York. W. J. Donald, 20 Vesey Street, managing director.

November

Electric Power Club. Nov. 19, 20, 21 and 22. Fall meeting at French Lick Springs Hotel, French Lick, Ind. S. N. Clarkson, Rockefeller Building, Cleveland, secretary.

Filtering Dirty Gas Through Flue Dust

Dry Cleaning of Blast Furnace Gas, Based on Tests at
Monessen Plant of Pittsburgh Steel Co.—
Calculation of Areas Required

BY GEORGE B. CRAMP

IN the use of dust as a filtering medium for cleaning gas, it will first be observed that the coarser the filter dust used, the greater the volume of gas and the higher the velocity that may be passed through a given area and thickness per unit of time. The finer the filter dust, the less the volume and velocity permissible, though the gas passing through a given thickness of fine dust will be cleaner than if passed through the same thickness of coarser dust.

Though it is possible to secure cleaner gas by passing it through a thick bed of coarse dust, in practice a uniformly coarse dust is not available and, with the

not exceeded, the dust in neither half will be blown from the curtain grids.

In a dust curtain with a uniform thickness throughout its area, but one-half of which is filled with coarse dust and the other with fine dust, gas will pass through both grades. But through the coarse grade the rate of flow will be greater and, while the safe rate of flow through the fine dust is not exceeded, dust will not be carried from the curtain.

It will therefore not be necessary to approach too closely exact uniformity of dust curtain thickness, to maintain comparatively uniform gas flow throughout

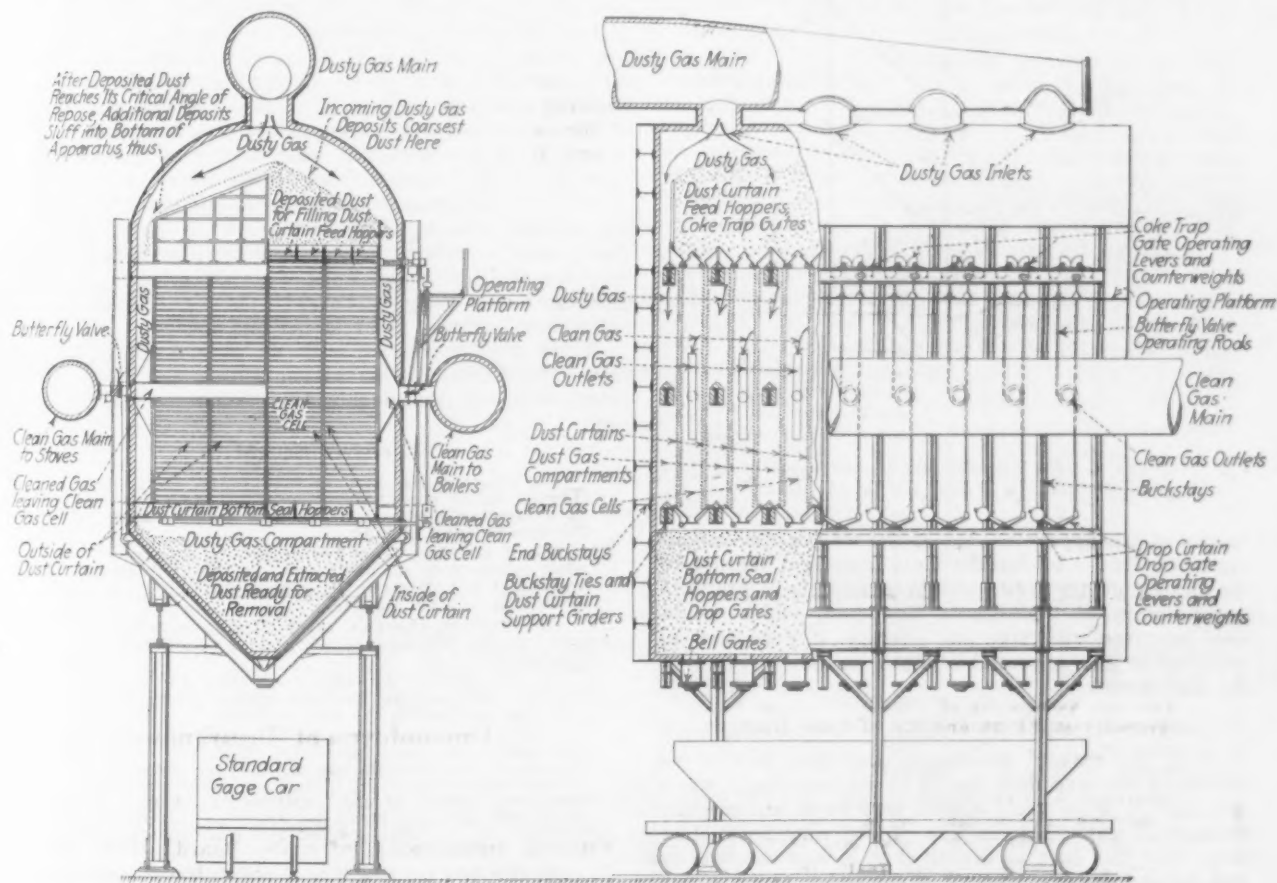


Fig. 3—Suggested Arrangement of a Full Sized Dry Cleaner for a 600-Ton Blast Furnace, There Being Eight Cells, One of Which Serves as a Spare

comparatively fine aggregates that are available, it naturally follows that the thinner the dust wall can be made, consistent with practicability, the less the resistance to gas passage through it.

Filter Dust Considerations

Although it is desirable to secure as nearly uniform thickness and grade of filtering material as possible, it will not be necessary to approach too closely such perfection in arrangement of the filter dust or dust curtain within the grids, as these constructions will be termed. For example, if a single curtain of dust is divided into two equal areas, one being twice the thickness of the other and both filled with the same grade or aggregate dust, gas will pass freely through both halves of the curtain. But through the thinner curtain the rate of flow will be greater, though, while the safe velocity of gas through the thicker half of the dust curtain is

the area of the dust curtain, especially when filled with a comparatively uniform aggregate of flue dust such as will be available at or immediately beyond the dust catcher of a blast furnace.

Dust Curtain Grid Construction

In considering a suitable construction for retaining the filter dust in comparatively uniform thickness throughout, and which will permit the maximum surface of filter dust exposed to the passage of gas through it, the vertical grid construction in Fig. 1 has been developed. The advantages of a vertical over a horizontal grid or grate are, that the vertical grids may be filled and emptied by gravity and, when filled to the maximum angle of repose of flue dust, it is impossible to overflow or overflow them. Overflowing is prevented by designing the top edges of each louver forming the grid so that it will come slightly higher

than the foot of each pile of dust when lying at a minimum angle of repose. Overfilling is impossible, as the dust will not rise higher than its maximum angle of repose.

When dusty gas begins its passage through the small piles or heaps of flue dust maintained by the grid construction of Fig. 1, it leaves behind it the dust it carried up to this point and there is a tendency for dust to deposit on the surfaces of the dust heaps. But when these dust deposits reach a critical angle of repose, added deposits sluff off and fall down into the

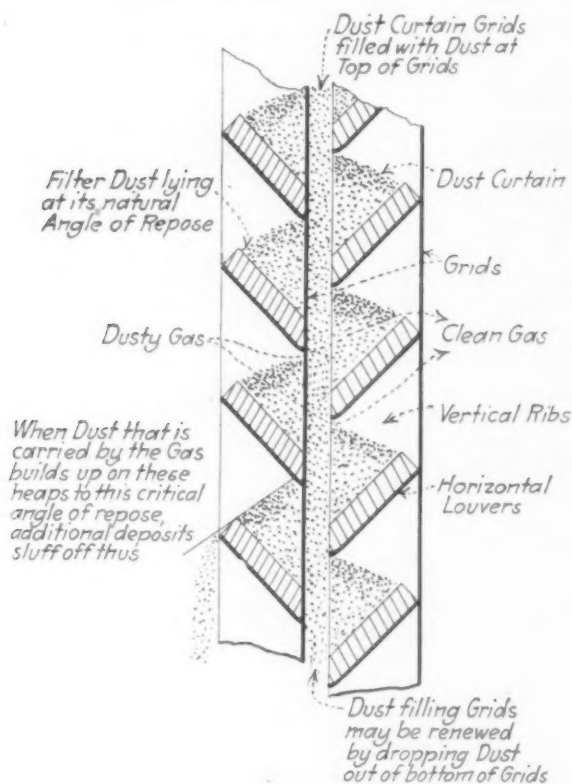


Fig. 1—Detail of Grid Construction, Showing Action of Dust in Forming a Filter for More Dust

bottom of the apparatus, out of the way of the oncoming gas. This is by far the most important feature in the design of the dust curtain grids, as it prevents accumulation of undesirably fine dust, which would soon interfere with free gas passage, if permitted to build up to any appreciable depth on the surfaces of the dust heaps.

Porosity and Permeability of Flue Dust

It is the general impression that flue dust is so extremely fine and fluid-like in action, especially when hot, that it is in itself almost seal tight against the passage of gas. This is true of the very finest dust only. But flue dust as deposited in a dust catcher, or just beyond it, is composed of particles about 1 per cent of which remain on a 20-mesh to the sq. in. screen when sifted, about 8 per cent on a 40-mesh, 16 per cent on 60-mesh, and 54 per cent will pass through a 100-mesh screen, from which it is observed that 66 per cent of flue dust remains on a 100-mesh screen.

As it may be assumed that the spaces or interstices between these dust particles are, on an average, not much less than the coarsest dust which passes through a 100-mesh screen, the size of these spaces may approximate 0.01 in. in all dimensions. This, if true, should permit comparatively easy flow or seepage of gas through an average of 1 in. thickness of aggregate dust.

Experimental Dry Cleaner

As shown in Fig. 2, the experimental apparatus is made up of two simple pyramidal shaped cast iron half shells bolted base to base, the small ends serving as gas inlet and outlet respectively. Inside these half shells, where their bases join, are fixed two adjustable grids, an enlarged section of which is shown in Fig. 1.

These grids are filled with the dust to be tested, through the dust hopper on top of the apparatus. When filled, these grids form 1 sq. ft. of the so-called "dust curtain" area, which permits but 72 sq. in. of actual exposure of dust to gas passage through it. The top dust hopper is made gas tight by a cover which is gasketed and bolted on, after the grids and hopper have been filled with dust. This cover has a sight glass for observing any disturbances of the dust curtain, which is indicated instantly when the dust within the hopper suddenly sinks out in any considerable quantity.

On the bottoms of the half shells are provided dust hoppers, also having gasketed and bolted covers. These hoppers receive dust deposited at the various stages of the cleaning operation, as noted on the drawing. The gas inlet is through a 2½-in. pipe controlled by a valve of the same size. The gas outlet is through a 1½-in. connection to a 3-in. manifold having 1¼-in., 1-in., ¾-in. and ½-in. outlets provided with valves. Pressure and differential gage connections are provided on one side of the half shells.

When dusty gas is admitted through the inlet of the apparatus, after it has been assembled and filled with dust to be tested for permeability and cleaning quality, the gas immediately begins to permeate or filter through the dust curtain, thus cleaning itself. It then passes out one of the gas outlets. If the filter dust in the grids is a fine grade or aggregate, one of the smaller outlets is used to exit the gas and, the size of the outlet being known and the pressure noted, it is easy to approximate the volume of free gas passed through the dust curtain per minute.

If a coarser grade or aggregate of dust is used in the dust curtain, one of the larger outlets may be used. The proper procedure in a careful test, however, is to open the smallest outlet first; if no disturbance of the dust curtain is observed through the sight glass, this outlet may be closed and a larger one opened.

Tests were conducted with an experimental apparatus of this description at the Pittsburgh Steel Co. plant, Monessen, Pa., during July, August and September.

Objectives Sought

- 1.—Whether flue dust, as precipitated in the dust catcher, would permit the passage of gas when used as a filtering medium in the dust curtain grids of the experimental cleaner.
- 2.—If the dust is so permeable, to determine to what extent it is so, and arrive at the approximate volume of gas that can be passed through 1 sq. ft. of dust curtain per minute.
- 3.—Whether the gas, after passing through the dust curtain, will be cleaned, and to what degree of cleanness.
- 4.—To observe the effects of blast furnace gas pressure fluctuations, as they might affect or disturb the flue dust in the dust curtain.
- 5.—To determine what back pressure might result against the blast furnace if all gas were passed through a dust curtain similar to that used in the experimental cleaner, by noting the differential pressure that occurs in the experimental device, this differential pressure being the difference between the pressure on the inlet side of the dust curtain and that on the outlet side.
- 6.—To note for how long a period of continuous operation a single charge of flue dust in the dust curtain grids is good.
- 7.—To observe effects that result from the high pressures that occur during a blast furnace slip.

The experimental cleaner was connected to the dust catcher at No. 1 furnace by a 2½-in. covered pipe, and was provided with water gages on inlet and outlet side of dust curtain. The dust curtain grids were then filled with dust taken from the dust catcher hot. This dust showed the following screen test:

Fifty-Pound Sample			
Number of Screen Meshes per Inch	Weight of Dust Remaining on Screen	Specific Gravity	Per Cent of Total Weight
20	0 lb. 10 oz.	1.97	1¼%
40	3 lb. 13 oz.	2.33	7%
60	8 lb. 3 oz.	3.29	16%
80	8 lb. 1 oz.	3.71	16%
100	12 lb. 8 oz.	4.08	25%
Through—100	16 lb. 13 oz.	4.05	33%

It will be noted from the table that the two finest parts compose over 58 per cent of the aggregate dust weight. With dust of this screen test used in the dust

curtain grids, the following results were secured, in tests to obtain the objectives enumerated.

Results Obtained

1.—Early in the test it was found that even the comparatively fine aggregate dust used is highly permeable to the passage of gas.

2.—This dust permitted gas passage of 15 cu. ft. per min. through 1 sq. ft. of dust curtain of 72 sq. in. effective surface, the working pressure being 10 in. water column.

3.—Gas passed through this dust showed a dust content of but 0.083 part of a grain per cubic foot of cleaned gas. Wet washed gas for the stoves of the blast furnaces of the company averages 0.122 part of a grain per cubic foot, in tests for cleanness.

4.—With the same size of gas outlet maintained that permitted the passage of 15 cu. ft. of gas per min. at 10 in. water pressure, increases in pressure as high as 20 in. water column were noted, without resultant disturbance of the dust curtain.

5.—Practically no appreciable pressure differential exists between the inlet and outlet sides of the dust curtain. If as much as $\frac{1}{4}$ in. differential occurred for an instant, it would immediately result in the dust curtain being blown; this does not occur when once a safe outlet size has been established, no matter what the pressure fluctuations.

6.—In tests of 2 hr. duration no tendency of the dust curtain to clog was noted and, from observations made, a single charge of flue dust acting as filtering medium in the dust curtain grids should be effective for at least 12 hr.

7.—As there were no severe furnace slips during test periods, slip conditions were simulated by connecting a pressure air line to the experimental cleaner and, with the cleaner under a normal pressure of 10 in., air was admitted to a pressure of 15 lb., or 420 in. water column, within a period of 10 sec. With the same size of outlet as when working under normal pressure, 90 cu. ft. of gas or air was passed per minute under high pressure at the same degree of cleanness as during low or normal pressure, and without blowing the dust curtain.

Filtration being the principle on which this cleaning device is based, it follows that, with large filtering areas, low velocities are possible and, with low velocities existing, low differential pressure is effected and perfect cleaning is accomplished.

Dry Dust Cleaner Size for Any Blast Furnace Plant Readily Determined

With a device similar to the experimental cleaner used, connected to the dust catcher or gas main at

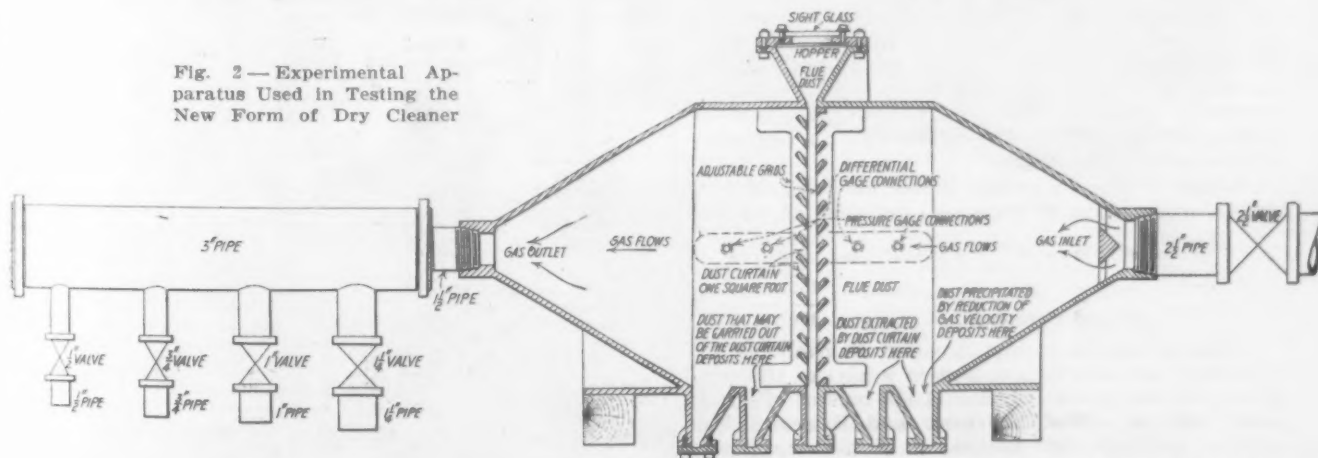
large capacity. The dust curtain area is arranged to form cells, the insides of which are completely sealed by dust from the outside or dusty gas compartment. In operation, these cells are completely surrounded by dusty gas which must permeate and filter through the dust curtains before entering the clean gas cells, whence the cleaned gas may pass into the clean gas mains which lead to stoves or boilers. The dust curtains would be approximately 17 ft. sq. or 289 sq. ft. in area. Each cell is formed by two of these curtains, making a cellular surface equal to 578 sq. ft. Eight cells of this size should be built in a cleaner to handle the gas from a blast furnace requiring an estimated 4180 sq. ft. of cleaning surface, which allows one cell for a spare, this being necessary when one is shut down for dust curtain renewal.

Operation

With the dry cleaner installed as near the furnace as possible, so that the coarser dust may deposit in the feed hoppers above the dust curtains, the gas from the furnace may be permitted to pass through the cleaner with the butterfly valves on all but one cell open. After sufficient time has been allowed to fill the curtains with dust, the single cell that had been closed to the passage of gas will be opened to the passage of gas, but the next adjacent cell is closed for a period to insure its being filled, when it in turn is opened and another closed. This is done with all the cells, after which the cleaner may be said to be dust sealed, and all dusty gas must travel through some part of this dust seal to reach the clean gas cell and thence the clean gas mains.

To renew the dust in the curtains of a cell, the operator first closes the butterfly valves leading from a single cell. He then proceeds to flush out coke or other particles too large to pass through the dust curtain, by dropping the coke trap gates over each clean gas cell. After closing these gates, the dust curtain bottom seal gates are opened for a time sufficient for the dust filling the curtains to drop out, when

Fig. 2—Experimental Apparatus Used in Testing the New Form of Dry Cleaner



any blast furnace at a point where it would be desirable or convenient to locate a working size dry cleaner, and with dust as deposited at this point, filling the dust curtain grids of the experimental cleaner; it is practically possible to arrive at the dust curtain area required in a working size dry cleaner for a blast furnace of any given capacity.

For example, if tests made at any 600-ton furnace showed that 15 cu. ft. of gas per min. may be passed through 1 sq. ft. of dust curtain at a normal working pressure of 10 in. water column, then to pass 62,500 cu. ft. of gas per min., which is based on 150,000 cu. ft. of gas per ton of pig iron, there will be required $62,500 \div 15$ or 4180 sq. ft. of dust curtain, in a working size dry cleaner, to clean gas satisfactorily for stove and boiler use, under all working conditions of the blast furnace, including severe slips.

Arrangement and Dimensions of a Working Size Dry Cleaner

Fig. 3 shows a suggested arrangement of a working size dry cleaner for a modern blast furnace of

they are closed. After sufficient time is allowed for the curtains to fill with dust, the butterfly valves are opened and the gas leaving this cell will be clean.

All operations are performed from one platform level by one man, whose time will not be wholly occupied in performing the operation. As there is no necessity for punctual performance of any duty connected with the proper operation of this cleaner, the attendant labor problem associated with this design should not be difficult.

Advantages

Advantages of this dry cleaner will begin at the furnace itself, where the low differential pressure on which the apparatus will operate will at no time affect in any way the performance of the furnace.

Within the apparatus several advantages are realized over other methods of cleaning blast furnace gas, by either the wet or dry process. The most important is that no cleaning medium or power need be supplied to the apparatus, the dust precipitated by the gas serving as this medium. In this respect a

tremendous saving is possible compared with cleaners in which cleaning medium or material, water, power or electric current must be supplied.

The high cleaning efficiency of this method of dry cleaning gives it an advantage even over many wet cleaning systems in present use, and accomplishes thorough cleaning under slip conditions as well as under normal working conditions of the furnace, an accomplishment as yet unequalled in blast furnace gas cleaning.

Possibilities

Beyond the dry cleaner lie tremendous possibilities as a result of its use. In the nature of conservation of sensible heat of the furnace gas there is better combustion in stoves and boilers, with resultant decrease in power costs, due to elimination of labor in upkeep and repair of equipment as a result of complete recovery of flue dust. This, at the average furnace,

where no special attempt is made or ineffective means are employed to recover the dust, may run as high as 60,000 tons per year.

The extremely low dust content of gas cleaned by this method makes it possible to clean that part of the gas to be used by gas engines, by passing it through an indirect cooler in which the gas is cooled and the moisture condensed, bringing down with it the remaining dust, thus accomplishing complete cleaning and recovery of the last trace of dust without bringing the gas into direct contact with water.

As this principle of dry cleaning is operative on an extremely low differential basis, practically the same construction as is used for blast furnace gas cleaning may be considered for installation in non-ferrous and non-metallic industries, where it is desirable to remove or reclaim objectionable or valuable dust from furnace gas, that would otherwise be carried up the draft stack and lost.

PIG IRON STOCKS

Large Accumulation of Basic in Pittsburgh and Nearby District—Moderate Tonnages of Other Grades

PITTSBURGH, Oct. 22.—Various estimates have been current during the past few weeks as to the amount of pig iron available for market lying in furnace yards in the Pittsburgh and nearby districts. These estimates have ranged anywhere from 350,000 to 500,000 tons.

With an idea of determining the actual facts as to the stocks of iron available for market, THE IRON AGE asked 25 companies, representing 34 blast furnaces engaged partly or wholly in making iron for the market, located within the area bounded by Johnstown and Erie, Pa., and Dover, Ohio, and Wheeling, W. Va., to furnish figures of such stocks at the close of September. All but five companies, representing seven furnaces, have responded. It is evident from the replies received that the stocks are up to the higher estimate, as the total stocks of the companies reporting are 359,971 tons, and those not reporting are believed from unofficial but reliable information to aggregate approximately 150,000 tons.

Stocks of iron by grades in the hands of 20 producers, representing 27 furnaces as of Sept. 30, follow:

Foundry	48,476
Malleable	25,907
Bessemer	32,683
Basic	252,905
Total	359,971

Some of the basic iron reported as available for market is not strictly standard in analysis; the total given for that grade includes 14,413 tons of off-grade iron. Nor is all of the basic and Bessemer iron strictly available for market, since steel companies may well have a use, in the event of a more active steel market later, for much of the iron now considered as available for market.

Automobiles in Farming Communities

Pointing out that there is more room for automobile sales in the farm field than in cities and towns, the National Automobile Chamber of Commerce, 366 Madison Avenue, New York, estimates that there are now 70 cars per thousand persons in the country districts compared with 127 per thousand in the cities and towns. The greatest per capita use of automobiles is shown to be in villages between 1000 and 5000 population, in which 9 per cent of the people in the United States own 20 per cent of the total number of cars.

Considering cities in order of size, it is found that the largest have, in relation to population, the smallest number of cars. Thus in the cities of over 100,000 people there were 84 cars per thousand inhabitants, compared with 120 cars in cities of 25,000 to 100,000,

with 150 cars in towns between 5000 and 25,000, with 230 cars in towns between 1000 and 5000, and with 70 cars in villages and country communities. The total is given as 102 cars per thousand people for the United States as a whole.

Structural Steel Sales in September

WASHINGTON, Oct. 20.—The Department of Commerce announces September sales of fabricated structural steel, based on figures received from the principal fabricators of the country. Total sales of 118,113 tons were reported for September by firms with a capacity of 223,360 tons per month.

Tonnage booked each month by 177 identical firms, with a capacity of 230,675 tons per month, is shown below, together with the per cent of shop capacity represented by these bookings. For comparative purposes, the figures are also prorated to obtain an estimated total for the United States on a capacity of 250,000 tons per month.

1922	Actual Tonnage Booked	Per Cent of Capacity	Computed Total Bookings
July	158,012	69	172,500
August	156,559	68	170,000
September ..	146,827	64	160,000
October	133,037	58	145,000
November ..	112,367	49	122,500
December ..	138,737	60	150,000
1923			
January ...	173,294	75	187,500
February ..	184,887	80	200,000
March	220,400	96	240,000
April	186,117	81	202,500
May	131,875	57	142,500
June	118,214*	51	127,500
July	117,267**	51	127,500
August	134,189***	59	147,500
September ..	118,113****	53	132,500

*Reported by 176 firms with a capacity of 230,475 tons.
 **Reported by 174 firms with a capacity of 230,280 tons.
 ***Reported by 172 firms with a capacity of 229,030 tons.
 ****Reported by 155 firms with a capacity of 223,360 tons.

Westinghouse Establishes New General Engineering Division

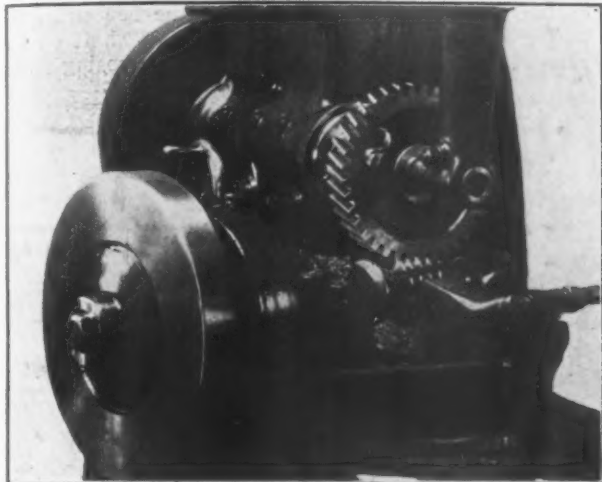
The Westinghouse Electric & Mfg. Co. at its South Philadelphia works has established a general engineering division which will be devoted to the study of central station and industrial plant problems. This will cover the application of steam power apparatus such as steam turbines, condensers and reduction gears. The department will also cooperate with the sales organization in providing engineering service to purchasers of the equipment.

In France powdered coal has been widely adopted as a fuel. In Germany, near Hanover, novel methods are being employed in the distillation of brown coal, a lignite quite different from American lignites, from which various valuable oils, paraffin and gas are being obtained. At Whitehaven, England, coal is being mined under the sea at a point $4\frac{1}{2}$ miles from the shore line.

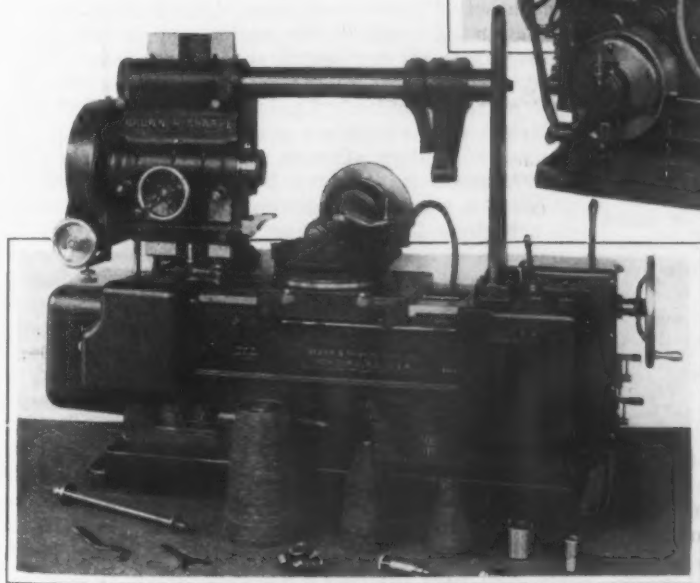
NEW GEAR HOBBIING MACHINE

Equipment for Accurate Hobbing of Spur and Spiral Gears—New Features

It is generally recognized that a hobbing machine must be of highly accurate construction if its product is to be accurate to a high standard. In addition, it is desirable to amply proportion and design the parts so that the machine will remain accurate during years of steady service. With these fundamental require-



The Hobbing of a Spiral Gear
Is Shown Above



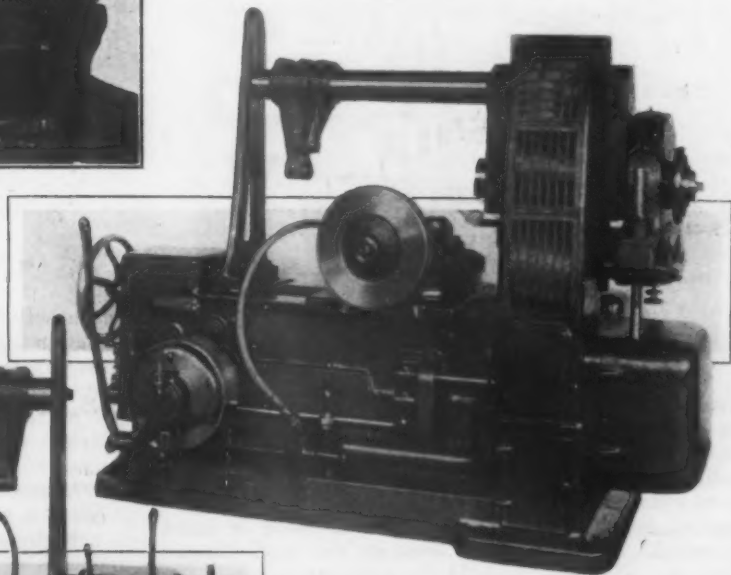
ments in view the Brown & Sharpe Mfg. Co., Providence, has developed the machine illustrated herewith, designated as the No. 44, which is rated to hob either spur or spiral gears to 18 in. in diameter and 3 diametral pitch in cast iron or 4 diametral pitch in steel.

Low and compact design of the hob slide and swivel places the hob spindle close to the ways, which is intended to assure maximum rigidity. Simplicity and convenience of control are features. An outstanding feature is a differential that permits the use of any feed desired, regardless of the gearing for the index or lead and by the employment of which only one set of lead gears is used for any number of teeth for a certain pitch and angle. The differential is entirely automatic in operation, becoming locked when a gear is removed, as in cutting spur gears.

Power is transmitted directly from the main shaft to a friction pulley and passes to the speed change

gears, then forward to the hob spindle and index mechanism and returns along the rear of the bed to the hob slide feed mechanism. For motor drive, the motor is mounted on a bracket at the rear of the machine. The friction type of pulley is considered an advantage, as it permits of moving the slide back and forth by power when the hob is stationary, thus eliminating hand operation. The outer end of the main drive shaft that carries the friction is mounted in ball bearings. The drive leaves the friction pulley sleeve and enters the feed box, where power is taken off for the hob lubricant pump and hob slide rapid advance and return mechanism independent of the hob drive.

The main drive shaft transmits power to the front of the machine, where by means of change gears it is taken to the splined shaft which leads to the cutter carriage. Ten changes of speed, from 45 to 166 r.p.m., for the hob spindle are available. A bevel gear on the splined shaft, just mentioned, meshes with another on the center of the swivel and drives the hob spindle through a short shaft and helical gears. The front bearing of the hob spindle is removable to permit of easy adjustment and quick changing of hobs up to 5 in. in diameter. Accurate end adjustment is obtained by means of a graduated screw, movement of 0.005 in.



New Gear Hobber Rated to Hob Either
Spur or Spiral Gears to 18-In. in
Diameter and 3 D.P. in Cast Iron or 4
D.P. in Steel. Low and compact
design of the hob slide and swivel
and simplicity of control are features.
An outstanding feature is a differential
that permits the use of any
feed desired regardless of the gearing
for the index or lead

being indicated. Endwise adjustment of $1\frac{1}{2}$ in. has been provided for using several sections of the hob before resharpening.

Another feature of the machine is the application of a balance wheel on the hob spindle itself, which tends to steady the cutting action of both the hob and the machine and eliminate chatter. In addition, the gear which takes the drive for the hob spindle runs in its own heavy bearing, the driving pressures being carried by this bearing rather than being transmitted to the hob spindle. This bearing also carries the weight of the balance wheel, the hob spindle bearings carrying the cutting or hob load only.

The hob slide has large, flat bearing surface and long ways, and all gears in the slide and swivel are securely held to minimize backlash. The hob swivel is graduated and may be swung 90 deg. either side of zero, and a vernier is provided to permit settings of 5 min. of angle to be readily obtained. Swiveling either

side of zero is a feature emphasized as permitting the full range of the machine, both in angle of helix or length of face, to be used in cutting either right or left-hand spiral gears.

The splined hob spindle drive shaft *A*, Fig. 1, after passing through the hob slide, extends to the left end of the machine, where it enters the differential inside the machine bed. The shaft *B*, with the spider of the differential on it, rotates, this driving the opposite shaft at twice the speed. From this second shaft *C* motion is transmitted through the change gears to the index wheel. Up to this point the differential does not come into play and the machine acts like a spur gear machine. When the feed starts, however, the horizontal shaft *D*, under the rear hob slide way, which is connected with the feed screw in the feed case, begins to

The work spindle slide is adjusted by means of a screw operated by a hand wheel and the thrust of the elevating screw is taken on ball bearings. A dial graduated to thousandths of an inch indicated the adjustment. The outer end of the work arbor is supported by means of a large overhanging arm equipped with arm braces. This arbor support has an adjustable center if needed, or a bushing can be used. A device is furnished for relocating the arbor support when the support has once been centered. Additional support for large gears is furnished by an adjustable rest placed back of the rim of the gear opposite the hob.

When the drive leaves the index change gears part of the power is taken off to drive the hob slide, the power first passing through a horizontal shaft on the rear of the machine. By means of transposing gears

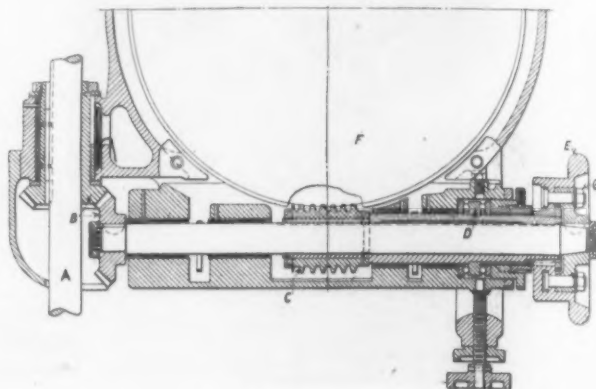
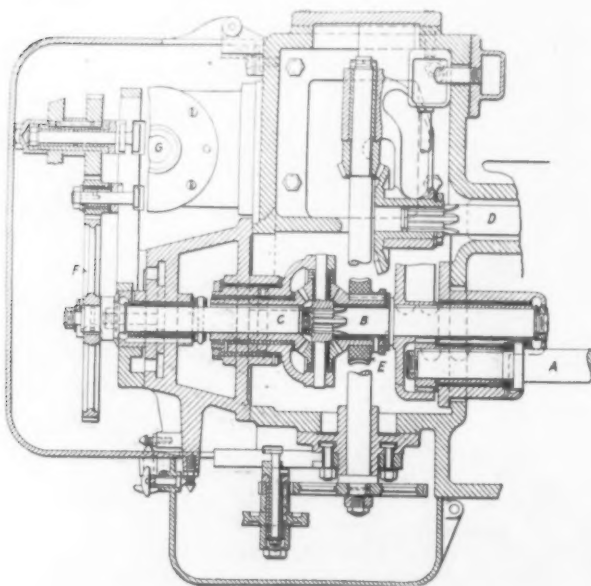


Fig. 1—At the Left, is a Plan View Through the Differential, Showing the Arrangement of the Mechanism. Fig. 2, above, is a section through the index worm and its bearings

revolve and transmits power through bevel gears to the lead change gears at the front of the machine. The lead change gears are easily calculated for any particular job by means of a simple formula and for a given pitch and angle of spiral, the gears remain unchanged regardless of the number of teeth or hand of spiral. After passing through the lead change gears the drive runs back to the differential, where by means of a worm it drives the worm wheel *E* keyed to the right-hand gear of the differential. As soon as this gear begins to turn in either direction the driven shaft *C* of the differential is accelerated or slowed down, as the case may be, and the resultant change of relative speed between the hob slide and the index wheel produces helical teeth.

The driven shaft of the differential carries the drive through to the index change gears *F*, which provide for cutting all numbers of teeth from 6 to 50 and all numbers from 50 to 180 excepting prime numbers and their multiples. After leaving the change gears the drive passes to the vertical shaft *G*, Fig. 1, and *A*, Fig. 2, and then through spiral bevel gears *B* to the worm shaft. The double-threaded index worm *C*, at the bottom of the worm wheel, runs in oil and is hardened and ground all over.

The index worm *C* is clutched to its sleeve, which runs in bronze bearings lubricated by a ring oiler. This sleeve has mounted on it a ball thrust bearing *D*, so that end play can always be eliminated. On the end of the sleeve facing the operator is a hand wheel *E*, which after loosening two nuts *G*, permits the worm to be operated by hand. This is of great value in re-cutting gears, as it has graduations to indicate the relative adjustment of the work arbor. The worm can also be dropped out of mesh so that the index wheel can be turned by hand when truing up the work arbor. The index wheel *F* is of gray iron, finish hobbled in place.

The work spindle front end has a No. 16 taper hole with a 2½-in. hole through the center for holding shafts. It is fitted to receive a face plate or fixture.

and a set of three bevel gears (which take care of the direction of rotation for right and left-hand hobs) power from the horizontal shaft is transmitted to the feed change gears in the feed case on the right-hand end of the machine. Twelve changes of feed in geometrical progression are provided from 0.010 to 0.153 in. per revolution of work. After leaving the change gears, power is delivered to the hob slide feed screw through a worm and a clutched wheel. The feed screw is actually a lead screw, as it is very accurately made and can be removed easily for replacement.

Two spiral bevel gears, having an intermediate and a clutch between them to give reversal, are mounted on the friction pulley drive shaft and drive the first hob spindle change gear on the front of the machine. On the hub of the bevel gear nearest the driving pulley is mounted a larger bevel gear that runs free on the gear hub and which rotates whenever the driving pulley turns, whether or not the friction is engaged. This large bevel gear drives its mate, which is mounted on a shaft from which the feed case lubricating pump and mechanism for quick movement of hob slide are driven. A vertical lever on the front of the feed case engages a friction clutch in either one of two gears which are driven in opposite directions by bevel gears from this shaft. This lever throws in the quick traverse mechanism. The hob slide also may be moved forward or back as may be required by means of the hand wheel *N* on the right of the feed case.

The feed case and differential mechanism are automatically lubricated by means of a pump in the feed case. The floor space required at right angles to hob spindle, with covers open, is 104 in., and parallel to hob spindle with covers open is 57 in. The net weight is about 6840 lb., which gives the necessary stability for accurate hobbing of gears.

Paul R. Delvin, purchasing agent for McQuay-Norris Co., manufacturer of packing rings, has been nominated for president of the Purchasing Agents' Association of St. Louis. Forty-two salesmen from various industries throughout the city were guests of the purchasing agents.

Preparing to Fight Pittsburgh Basing Plan

Politics Likely to Figure in Agitation in Congress at
Approaching Session—Appeals Made to
Farmers to Arouse Opposition

BY L. W. MOFFETT

WASHINGTON, Oct. 23.—Despite the manifest sincerity that inspires organizations that have been formed to oppose the so-called Pittsburgh base method of quoting steel prices, the widespread publicity that has been given this proceeding has forced the conclusion that it will be made the matter of politics at the next session of Congress. Evidence grows that this case is now being used as a means of appealing to the prejudices of the agricultural community. Indulgence in this sort of practice is more or less popular for the time being. This is due to the power of the farm bloc in Congress and by reason of the temporary distress of a portion of the agricultural section of the country, particularly the wheat farmer whose production represents 8 per cent of the total crop output of the country. As it happens, his ratio to the total agricultural production is approximately the same as the ratio of organized labor to total employment.

In the case of the wheat farmers, it is realized by the Administration that they are facing a serious situation as a result of over production and the curtailment of export markets, but it has been announced definitely that the Administration will not approve such methods as price fixing, Government warehousing, etc., suggested by some radical members of Congress.

It is believed that the effort of the Administration is to show the agricultural community that only sound remedies will be of any benefit, and among one of the proposals now made is one to lower railroad export rates on agricultural products. The farmers, however, are being appealed to in many directions to give the impression that they are the victims of excessive cost of the products which they buy while suffering from the low prices which they obtain for the products on sale. The Pittsburgh base case is being used in this connection and in view of the activity of legislatures of some of the Middle Western States in instructing their attorneys general to participate in the proceedings now before the Federal Trade Commission, it would not be surprising if members of the farm bloc in Congress undertake some move in opposition to the Pittsburgh base practice. As it happens, the hearings in the case will begin on Dec. 10, which is almost coincident with the reconvening of Congress and this, it is claimed, may give impetus in Congress to the agitation on the subject by the farm bloc. The organization last week in Chicago of the Associated States Opposing Pittsburgh Plus, involving 19 States, represents another phase to the case. It grew out of the appropriation of \$55,000 by Illinois, Iowa, Minnesota and Wisconsin for the formation of a joint commission to fight the so-called "Pittsburgh plus" practice. The custom is being attacked from many sides and one of the outstanding features is that it is being tied up with the efforts of the Government to relieve the agricultural situation. Among other appeals being made to the farmers is that they are suffering from high freight rates on steel due to the Pittsburgh base method of quoting prices. The familiar claim is made that they are paying a fictitious freight on steel when it is bought at mills other than those in the Pittsburgh district. In this connection, a so-called estimate has been made that the Pittsburgh plan imposes a tax of \$50,000,000 a year on the farmers of the country. Going further, it is declared that while this freight applies only to steel it also enters into other commodities using steel, including agricultural implements.

The claim also is made that materials entering into the manufacture of farmers' machinery, consisting chiefly of steel, representing 47 per cent of the

cost, while labor in the farm machinery gets 22 per cent and the manufacturer gets 31 per cent to cover overhead, profits and taxes. Increasing wages 20 per cent in the industry, it is maintained, would increase the selling price 4.4 per cent, while increasing materials 10 per cent would advance cost 4.7 per cent.

James B. Howard, president of the American Farm Bureau Federation, has stated that 1,925,000 farms in 11 Midwestern States use on the average one ton of steel a year each. He contends that the steel sold to these farmers from Chicago, which he says is the chief producing point, costs the farmers an average of \$7.60 a ton for so-called "imaginary freight" because while manufactured in Chicago, it is charged for on the Pittsburgh-plus basis. On this calculation, the farming communities of these 11 States, according to Mr. Howard, have to meet an extra expense of something like \$29,000,000, but for the entire country he estimates that the total runs up from \$75,000,000 to \$100,000,000, when consideration is given to such matters as highway construction, office building, etc.

It has been pointed out that no matter how strong the arguments and logic have been in favor of the Pittsburgh base, they are familiar mostly to those in the trade only and that it would be a wholesome influence to counteract the appeals against the plan by acquainting the farming community and others with these arguments and the reason for the Pittsburgh base plan, as well as the fact that it operates only theoretically when supply exceeds demand.

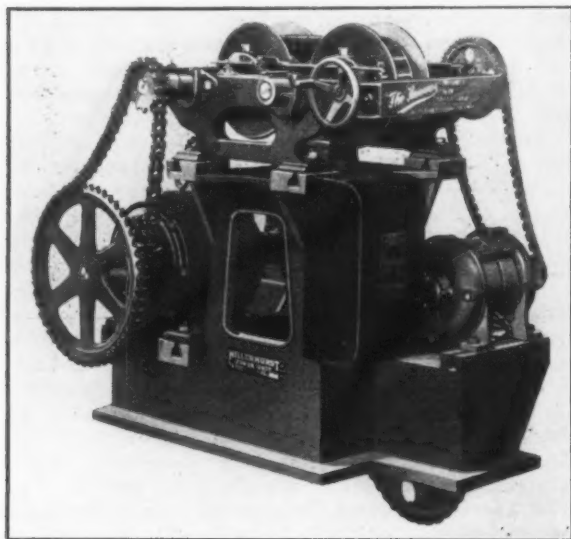
Opponents of Pittsburgh Basing Claim Large Saving

CHICAGO, Oct. 22.—Associated States Opposing Pittsburgh Plus held its first meeting at Chicago Oct. 17 with 10 States represented. B. F. Baker, Illinois, chairman of the executive committee, pointed out the handicap which Pittsburgh basing point system is said to place on the farmer through the increased cost of steel entering implement manufacture, and contended that because of the campaign against Pittsburgh plus steel is now \$5 cheaper in the West than it otherwise would have been. B. J. Gibson, Attorney General of Iowa, urged the necessity of wide publicity to arouse sentiment against Pittsburgh plus and ascribed the progress made thus far to the earnest campaign which Western newspapers have waged against the practice. State Senator Randolph Boyd, who will represent Illinois at the hearing of the Pittsburgh plus case when the Federal Trade Commission hearing is resumed at Washington Dec. 10, asserted his State had this year saved \$80,000 in the purchase of steel for roads, bridges and culverts as a result of the fight on Pittsburgh plus. This, he asserted, was a handsome dividend on his State's appropriation of \$25,000 for fighting the Pittsburgh basing point practice. In addition to the 19 commonwealths mentioned in THE IRON AGE last week as being members of the Associated States Opposing Pittsburgh Plus, Utah, Louisiana and Mississippi have joined and are represented by the following directors: Governor Charles R. Mabey and Attorney General Harvey H. Cluff for Utah, Governor John M. Parker and Attorney General A. V. Coco for Louisiana, and Governor Lee M. Russell for Mississippi.

Power Unit for Operating Conveyors

A power unit, with a variable speed drive for operating conveyors used in handling parts through continuous baking and drying ovens, automobile assembling conveyors and conveyors for other material handling work where quick speed changes and great speed reductions are necessary, has been brought out by the Jas. F. Miller & Hurst Corporation, Detroit.

The unit is self contained and may be driven either by an alternating or direct current motor, which is mounted on a one-piece cast iron machine stand, as shown in the accompanying illustration. The motor



Power Unit for Variable Speed Drive of Conveyors. Quick change and large reductions of speed are features

is connected by a silent chain drive to the constant speed shaft of a Reeves variable speed transmission. The transmission is provided with ratios from 2 to 1 up to 8 to 1 on the same frame, and a range between these ratios can be had by turning the adjusting wheel provided. An intermediate roll chain drive connects the variable-speed transmission to a Ganschow spur-gear speed transformer or reducer, which effects a speed reduction of 132 to 1. The hardened steel gears of the transformer run in oil.

A roller chain drive connects the slow speed side of the transformer to the main drive shaft of the conveyor. With the variable speed transmission and speed transformer a speed reduction of approximately 6000 to 1 can be effected. An important feature of this unit is that any desired speed change can be made without stopping the conveyor and simply by turning the adjusting wheel. The plant may be either set on the floor on which the conveyor is located or it may be placed under the ceiling for the operation of a conveyor on the floor above. All chain drives are protected with safety guards. The unit is available in various sizes from 2 to 50 hp.

Dolomite for Refractories

Research work on the utilization of dolomite in refractories is being continued by the Department of the Interior at the ceramic experiment station of the Bureau of Mines, Columbus, Ohio. The main problem being studied is to combine the lime in the dolomite so that it will be non-slaking and at the same time hold up the refractories, thereby rendering available abundant deposits of dolomite for extensive use as a basic refractory. Work previously done by the Bureau of Mines on different fluxes for rendering dolomite refractories non-slaking indicated that by careful selection and preparation, refractory bricks could be made, one of the best fluxes tried being alumina-iron flux. More recent work done by the bureau consisted of slaking time tests on varying proportions of dolomite mixed with an alumina-iron flux. The proportion of flux to dolomite was varied between 5 and 20 per cent. The refractory properties as well as the slaking tendency

of these mixes was studied. After the best proportion of flux to ground rock was determined, bricks were made by the soft mud and dry press processes, using both organic and inorganic binders. Then methods of firing to produce sound bricks were studied. As a result, a composition has been found which, when compounded with the proper binder and burned after a given procedure, produces a strong, non-slaking brick of high refractoriness. The bricks are satisfactory in every respect, except that uniform shrinkage has not been completely attained. During the coming year, bricks will be produced and tried out in the industry.

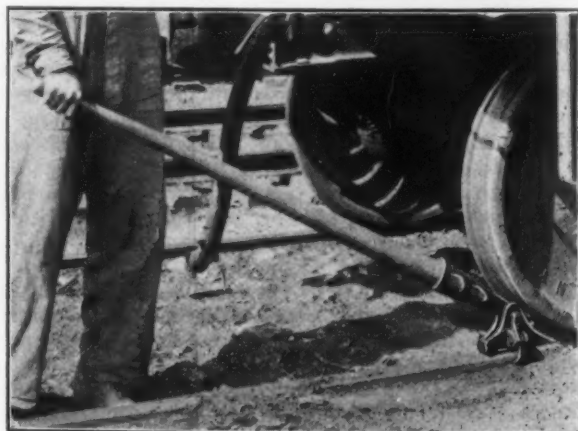
Iron Deposits Discovery in Ontario

TORONTO, Oct. 23.—The discovery of a valuable deposit of high grade iron, said to grade 73 per cent, at a point 64 miles north of Sault Ste. Marie, Ont., on the Mississauga Forest Reserve, has been reported to the Department of Mines. Dr. Miller, Provincial Geologist, and his assistant, R. G. McConnell, have left for the location and developments are awaited with interest. It is stated that if the discovery turns out according to expectation, it will mean a new era in the iron and steel industry of Ontario. The preliminary reports are to the effect that the ore bodies are extensive and that since the discovery of the iron deposit, some 30 claims have been staked, with a real rush on. Veins showing magnetite ore running to 60 and 65 per cent of iron have been uncovered in the claims held by McPhail and his associates. Considerable development work has already been done and a large amount of money expended.

Device for Spotting Cars

The device illustrated, known as the Congo car mover, for use in spotting cars for loading and unloading, for removing cars from one track to another, for spragging cars on grades and other service, is being marketed by Conewango Car Co., Warren, Pa. It is claimed that a loaded car may be moved 8 in. with a single downward stroke of the handle, and that two loaded cars may be moved at one time.

Three grips are provided to hold on greasy or icy



A Loaded Car May Be Moved 8-In. With a Single Downward Stroke of the Handle

rails, one grip at each side of the rail and one in the back. The main body, the operating lever and the operating lever shoe are of cast steel. The side rail grips are cast steel, case hardened, and the side die and rear die are of tool steel. Other parts are of rivet and spring steel, and the handle is of maple.

It is claimed that a car may be moved 40 ft. in a minute or the equivalent of $\frac{1}{4}$ mile an hour on level grade, and the operator can slide the mover along the rail and keep a car in continuous motion. The operation starts with the workman standing in upright position, the handle being pushed downward to within 8 or 10 in. of the rail. Sure grip of the rail is a feature emphasized as preventing the danger of the operators' knuckles being struck or scarred against the rails.

MARKETS DIE-CASTING MACHINE

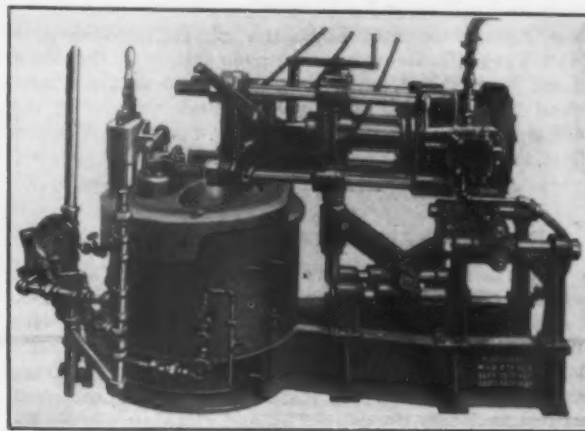
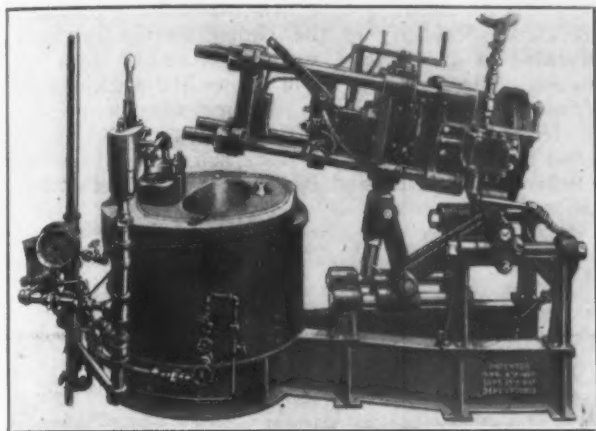
Universal Unit for Large or Small Castings in Aluminum or White Metal Alloys

Edgar N. Dollin, 6 Church Street, New York, is marketing the die-casting machine illustrated, an outstanding feature of which is that it is interchangeable as to alloys, making, it is claimed, large or small castings in aluminum alloys or lower-fusing white metal alloys with equal efficiency.

The machine is of the side gated type, the method of gating being on the sides of the dies, between die surfaces. Opening and closing of the dies and shooting of the metal is by power, operation being entirely by two valves. In addition, the machine has ample power

the die to the nozzle of the goose-neck by means of the link, the die carriage being pivoted. Metal is shot into the die under 400 lb. pressure through a separate metal valve. An operating pressure of 100 lb. is constantly maintained in the cylinder, except when the dies are in a closed position, when a third-position of the valve shuts off the back pressure and vents the clearance of the cylinder to the atmosphere making in effect an air lock. This feature is emphasized as a basic development resulting in a saving of about 80 per cent of the power otherwise required to operate the machine.

Adjustments for various sizes of dies are simple. A rack and pinion is employed for endwise adjustment of the die carriage, and screw adjustment for height of the die carriage. The end plate on the die carriage may be moved also for depth adjustment of dies, but



Die Casting Machine in Open and Closed Position. Opening and closing of dies and shooting of the metal are by power. The machine is operated entirely by two valves. Interchangeability of alloys is a feature

to pull cores and slides. Capacity for high quantity and quality production is ascribed to the method of heat regulation, the method of applying air to metal and the size and design of goose-neck. It is claimed that as high as 300 operations an hour has been obtained. Ease of adjustment is also a feature, in many cases dies being changed in 15 to 20 min. Low upkeep cost is attributed to simplicity and ruggedness of design and construction.

The machine is made up of the base, die carriage, furnace, metal pot and goose-neck. The die carriage is operated by an air cylinder, which is 14 in. in diameter and has a 10 in. stroke. The stroke of the cylinder operates the die plates on the die carriage and locks

it is said that in most cases depth adjustment of the dies is not required, the variation being taken up with the air cylinder. Although one man can operate the machine, better production is said to be obtained with two men, because many dies are complicated and require a great deal of attention.

The distance between centers of bars is 16 in. high by 19 in. wide, and the greatest overall die depth is 18 in. The stationary vertical goose-neck is integral with the pot and is air operated. The pot capacity is about 1000 cu. in. Fuel oil is used for heating, although gas may be used also. The floor space recommended for the machine and two operators is about 9 x 10 ft. The shipping weight is about 3500 lb.

Points Similar to Those of Claire Furnace Case Discussed

WASHINGTON, Oct. 23.—A great deal of interest has been shown in the dissenting memorandum filed by Commissioner Van Fleet in opposition to the order announced by the Federal Trade Commission last Saturday against a number of sugar companies requiring them to "cease and desist from conspiring to maintain or retain the monopoly of the beet sugar industry enjoyed by them," etc. Commissioner Gaskill also dissented from the findings and order of the commission.

The memorandum of Commissioner Van Fleet is of particular interest to the iron and steel industry because he brings out points identical with some that are involved in the Claire Furnace Co. case now before the Supreme Court and in which the commission was enjoined by the lower courts from compelling iron and steel producers to submit cost data to the commission on the ground that the manufacture of steel is not interstate commerce. Commissioner Van Fleet points out that the manufacture of sugar is intrastate. The sugar proceeding is based on section 5 of the Federal Trade Commission act which declares unlawful unfair methods of competition in commerce.

Commissioner Van Fleet said the fact that the respondents are engaged in commerce in selling the sugar has no bearing on the case for the reason that the proof does not show any acts of unfair competition in such product. The acts to which the proof is directed, he said, concern only the manufacture. In declaring that it is well settled that production and manufacture are not commerce, Commissioner Van Fleet cites a number of important court decisions. The fact that an article in process of manufacture is intended for export to another State, he maintained, does not render it an article of interstate commerce.

Purely intrastate acts may or may not come under the Federal jurisdiction, depending on whether they affect existing interstate commerce, Commissioner Van Fleet said. And the same acts may or may not be subject to such jurisdiction. When such acts are subject to such jurisdiction, he pointed out, it is not because they are commerce but because they affect it or obstruct it.

Bids will be asked immediately for construction work on three schools and an addition to a fourth by the Board of Education, Huntington, W. Va. The buildings will be of steel and reinforced concrete.

BIDS FOR NAVAL VESSELS

Ships Condemned Under Limitation of Armaments Treaty to Be Scrapped

WASHINGTON, Oct. 22.—Bids for discarded vessels on the ways at Navy yards will be opened at 11. a. m., Oct. 25, and must be received at the Navy Department by that hour. These bids include the battleships South Dakota and Indiana at the New York Navy Yard, North Carolina, at Norfolk, and Montana, at Mare Island, and the battle cruisers Constitution and United States at Philadelphia. These vessels are to be scrapped on the building ways where they now severally lie.

Battleships afloat, which are to be sold Nov. 1, have already been rendered unserviceable for war purposes and are open for inspection. These include the New Hampshire and Louisiana at the Philadelphia Navy Yard, the Georgia and Rhode Island at the Mare Island Navy Yard, and the Connecticut at the Puget Sound Navy Yard. Later sales include vessels on the building ways at private yards, Nov. 8, and battleships afloat at Navy yards, Nov. 30.

Wholesale Prices in September

Reports to the Bureau of Labor Statistics show an increase of nearly 3 per cent in the average price of all commodities in September as compared with August. Of the nine groups of items listed, only fuels, metals and building materials showed a drop, these being slight in every instance. Increases occurred in farm products, foods, cloths and clothing, chemicals and the miscellaneous items, while house furnishing goods at 183 remains stationary, being now the second highest of all groups. Of the 404 commodities or series of quotations covered, 145 showed increases, 85 showed decreases, and 174 remained stationary. Details in the accompanying table, showing the groups of commodities, indicate that in only one group has there been a decrease since last year, that being in fuels, which were excessively high a year ago because of the coal strike.

	Peak of 1920	Septem- ber, 1922	August, 1923	Septem- ber, 1923	Advance in One Year Per Cent
Farm products.....	247	133	139	144	8.3
Foods	248	138	142	147	6.5
Cloths and clothing....	346	183	193	202	10.4
Fuel and lighting.....	281	244	178	176	*27.9
Metals and metal products	203	134	145	144	7.5
Building materials....	300	180	186	182	1.1
Chemicals and drugs...	213	124	127	128	3.2
Housefurnishings	275	173	183	183	5.8
Miscellaneous	208	116	120	121	4.3
All commodities	247	153	150	154	0.7

*Reduction.

Figures of the National Industrial Conference Board show that the cost of living Sept. 15 was more than 1 per cent higher than the month previous, this being based on increases in food prices of 2.1 per cent, and in clothing of 2.4 per cent. The cost of living in September is thus placed at 63.4 per cent higher than in July, 1914.

Large Use of Blast Furnace Slag in England

British blast furnace owners are now deriving profit from the great slag heaps accumulated throughout long years. J. M. Paul, of the Stanton Ironworks, told a meeting of foundrymen at Manchester on Oct. 6 that pig iron can almost be described as a by-product of the blast furnace at the present time. There is practically no profit obtained from the sale of pig iron but the slag is now notably valuable. About ten years ago roadmakers began purchasing slag as a substitute for granite and during the last three years the demand has been very great. The slag is first crushed and then mixed with tar.

The Stanton Ironworks is selling 40,000 tons of slag per month and 20,000 tons of this amount is treated with tar. There will be a big market for five or six years to come but it seems, according to Mr.

Paul, that the supply is likely to run out before then. At Stanton four years ago there were slag heaps with five million tons of slag and these had been reduced until, at the present time, only a quarter of a million tons is left. In two years' time all the accumulated slag will have gone and a peculiar problem will then have to be faced. It requires 7 tons of tar for 1 ton of slag. It has not been found possible to use the cement made from slag for the manufacture of centrifugally cast cement water pipes, because of the high sulphur content which renders them porous.

Bookings of Steel Castings in September

WASHINGTON, Oct. 22.—The Department of Commerce announces September bookings of steel castings, based on reports from principal manufacturers, by companies representing over two-thirds of the commercial-castings capacity of the United States to have amounted to 47,574 tons, as against 50,515 tons in August. The following table shows the bookings of commercial steel castings for the past nine months by 65 identical companies, with a monthly capacity of 96,900 tons, of which 38,300 tons are usually devoted to railroad specialties and 58,600 tons to miscellaneous castings:

Month 1923	Total Per Cent		Railroad Specialties Per Cent		Miscellaneous Castings Per Cent	
	Net Tons	Capacity	Net Tons	Capacity	Net Tons	Capacity
January	100,605	103.8	47,879	125.0	52,726	90.0
February	90,152	93.0	39,845	104.0	50,307	85.8
March	143,564	148.2	76,409	199.5	67,155	114.6
April	90,968	93.9	39,610	103.4	51,358	87.6
May	89,493	92.4	38,788	101.3	50,705	86.5
June	84,878	87.6	42,773	111.7	42,105	71.9
July*	52,066	53.7	16,741	43.7	35,325	60.3
August	50,515	52.1	18,332	47.9	32,183	54.9
September ..	47,574	49.1	21,685	56.6	25,889	44.2

*Two companies with a capacity of 785 tons per month on miscellaneous castings now out of business.

Republic Iron & Steel Co. Earnings

Net profits of the Republic Iron & Steel Co. for the quarter ended Sept. 30, were \$1,693,497, after taxes and charges, compared with a deficit of \$138,676 shown for the corresponding period of 1922. After allowing the quarterly distribution of 1½ per cent on preferred stock together with 3 per cent accumulation, the remainder was equal to \$1.68 per share on common. Operating profits for the period were \$2,384,527 as compared with \$395,756 for that period of 1922. Based on quarterly reports net profits for the nine months of 1923 were \$5,434,185.

Unfilled orders on hand Sept. 30, last, were 127,767 tons, as against 187,392 tons on June 30, and 199,431 on Sept. 30, 1922.

Preparation of Super-Refractories

Experimental work in the development of refractories from artificial sillimanite designed to be superior to the natural refractories now in use is in progress at the Northwest Experiment Station of the Bureau of Mines, Department of the Interior, at Seattle, Wash. The work is being done in cooperation with ceramic trade interests. Sillimanite is the normal silicate of alumina, containing 63 per cent Al₂O₃ and 37 per cent SiO₂, and is also made artificially in the electric furnace. The best compound found is one a little richer in alumina than the pure sillimanite. One of the principal problems is the presence of impurities in the local clays that affect the fusing point. It was found that iron oxide present as impurity could be partly removed by reduction, but magnesia and lime could not be removed.

Steel-Furniture Stock Shipments

WASHINGTON, Oct. 22.—The Department of Commerce announces that September shipments of steel-furniture stock goods, based on reports received from 22 manufacturers, amounted to \$1,273,259, as against \$1,345,147 in August, and \$1,062,495 in September, 1922. The averages for the first nine months of 1923 and 1922 were \$1,408,000 and \$1,013,300 respectively.

Italy Depending on Rehabilitation Through Work and Frugality



Large Excess Capacity of Plants Await in Part the Development of Water Power—Views of the Former Ansaldo Head

BY DR. RICHARD MOLDENKE

DR. GIOLITTI

TURIN, ITALY, Oct. 8.—The September meeting of the (British) Iron and Steel Institute at Milan, Italy, was made the occasion of an extensive inspection of the larger iron and steel establishments of that country. The visitors were much surprised to see the rather large layouts which must have entailed necessarily heavy investments, considering the youth of the country's industry in its larger aspects. Indeed, while admiring the enterprise shown, and particularly the attention given the human problem, a feeling would crop up that here was much overcapacity with the burden of deterioration and increased overhead entailed, which would take time to overcome. It seemed that Italy had not escaped the general overconfidence manifest after the war in imagining that the scale of war-time production would continue indefinitely.

Those of us who have employed Italian labor, and consequently know something of the spirit of the man of the sod, take the important movement of "fascism" as the natural outcome of the desire to protect the innumerable little land parcels from the engulfment of communism, which seeks to take these away from their individual holders. It is a wave of conservatism marking the backward swing of the pendulum from so-called radicalism. This in Italy has found the man of the hour to head it consistently and successfully—even though we may think illegally. Any public interest in Italy must, therefore, be considered today in connection with this conservative movement. Abundant discussion with people in all walks of life here indicates that the Italian situation is of a two-

fold character—that of the government and that of the people itself.

During the war the self-styled saviors of the world managed to feather their nests more or less successfully by the creation of new offices, socialization of industries, reduction of working time and efficiency and a general chasing of the rainbow millennium. The fascist movement here has cleaned out these incompetents, removed the drones among the necessary government functionaries, is balancing budgets more successfully and has put the government end of Italy on a sound basis. It now has to face internal conflicts which must be weathered successfully, otherwise things will revert to the old-school governmental ways.

So far as the Italian people themselves are concerned, this is quite another story. The complaint of little work for high wages, the suffering of the middle classes, scarcity of money, etc., are heard everywhere. There is much deflation ahead yet but it will be easy as compared with the other nations, for there is leadership at the top and an abundance of brawn and muscle to command at the bottom. Would that Russia and Germany had their Mussolinis to pull them from the slough of radicalism.

So far as the iron industry of Italy is concerned, the problems are somewhat special. Nature has given her some iron ore—and very pure ore at that—but she has to buy her fuel, unless this can be successfully replaced by the abundant water-powers readily available. Should this be accomplished successfully and soon, the existing overcapacity of the plants will be utilized,

DR. FEDERICO GIOLITTI of Turin, Italy, who is probably the foremost steel man of that country, was born near Turin on June 19, 1880. After the usual school work he entered the University of Rome, where he pursued classical and scientific studies, receiving the degree of doctor of philosophy in 1901. Dr. Giolitti then traveled some years, studying at Leipzig and Göttingen, and became professor of chemistry and metallurgy in the University of Rome in 1905. His natural bent for metallurgy brought him into close contact with the rapidly developing steel industry of Italy, and in 1907 he left Rome to join the Ansaldo interests. He soon became active head of this development, and in 1908 he built the great and modern Italian steel works at Genoa for his corporation, where guns, armor plate and ships are produced. In spite of all his activity, Dr. Giolitti found time to accept the professorship of metallography at the Turin Polytechnic Institute in 1912, and remained as active director of the fortunes of Ansaldo until 1919. Then he made his connection a consulting one, and took up a broader field in the general steel metallurgy of Italy and particularly its new development along lines using electric power for heat production. Dr. Giolitti is himself the owner of industrial establishments and is unquestionably a foremost authority on the financial and industrial problems of his country.

and Italy will enter the ranks of competitive exporters of finished steel products of the higher grades.

Interview with Dr. Giolitti

To get the viewpoint of the general situation with its bearing on the iron industry more particularly, the writer was fortunate in discussing the question with the foremost authority on the subject in Italy—Dr. Federico Giolitti of Turin. Dr. Giolitti is well known in the iron and steel world, and particularly to us of the United States. Not so long ago, while Professor Richards was living and presided at a dinner of the iron and steel committee of the American Institute of Mining and Metallurgical Engineers, Dr. Giolitti was the guest of honor and gave an instructive exposition of Italy's war work in steel development, which showed us a few new wrinkles. Hence his views on the present situation will be appreciated. These are about as follows:

Italy has to rely upon her water powers in the north to replace the missing coal she now has to buy. So the foremost immediate problem is the commercial production of pig iron electrically. With but a limited ore supply—though of great purity—and but few furnaces of the ordinary type available, the direction that has to be pursued is in the line of quality rather than huge tonnage of fabricating steel, so far as the home supply of materials is concerned. This, however, does not exclude the importation of semi-finished steel for working up into plates, shapes, wire, etc., and thus using to the utmost the excellent and abundant labor supply of the country. In fact, at the moment tariff legislation is being shaped to make it easy to import pig iron, billets, ingots, etc., for working up at home to supply the demands of the shipbuilding industry, for structural steel, automobile castings and supplies, as well as kindred requirements. The unfortunate European situation is now showing signs of

easing up, and the activity of Italian plants may soon resume, as material can be secured.

The problem of electrically produced pig iron is well under way for solution. When reckoned on a gold basis, Italian unskilled as well as skilled labor is today receiving less than in pre-war times. Between these two factors, therefore, with the world's supply of ore to draw from as wanted, the steel industry will shortly be on an excellent basis, both internally and for export. The very nature of the processes that must be used, however, will keep the output one of quality and hence financially valuable.

The question of deflation, so intimately associated with wages, is one that must go on very slowly in Italy if disastrous consequences are to be avoided. Sudden jumps upward in values would disorganize everything, and the real problem becomes one of materially increasing the solid wealth of the nation by the cumulative results of hard work, frugality and saving. With the underlying basis of solid accumulation of substance, the rise in the value of Italy's money will come naturally and as gradual as this wealth is created. Hence, while deflation has to come, for Italy it will come gradually and with far less friction than in other countries, as the Italian workman is a naturally contented man who, if protected from sudden fluctuations in living costs and remuneration, will adjust himself to conditions readily.

The Italian situation is, therefore, a hopeful one in spite of the necessary reconstruction burden incident to the great war. It will be worked out from within the country. Dr. Giolitti himself was much opposed to the post-war expansion of all the Italian industries, and actually gave up his active managerial connection with his own industry to devote himself to the coming problems of steel production, so that this growing industry of Italy might be kept within its natural and most effective channels of development.

Truck Designed for Handling Wire Reels

An electric truck for handling wire reels that is similar to the usual elevating platform truck, but equipped with two long lifting arms instead of a lifting



Wire Reel Truck. The span between lifting arms may be varied

platform, has been placed on the market by the Automatic Transportation Co., Buffalo.

The lifting arms are built in the shape of a "wish-bone," and lift the reel by means of a bar through the core of the reel. The span between the lifting arms may be varied, and is determined by the size of reels to be handled at the particular installation. By means of a device on each lift arm, known as a step-up jack, the truck is able to handle reels up to 84 in. in diameter. The step-up jacks are a series of interlocking terraces adjustable to meet the core of the reel. The front wheels of the truck are rubber tired, 16 x 3½ in. in

diameter, and are equipped with large Timken bearings.

The raising mechanism consists of a separate motor and worm gear especially designed for this purpose and is direct connected to the lifting arms. The height of lift is 4½ in., and is accomplished by means of incline planes, which when raised rest on a solid surface, taking the entire strain from the lifting mechanism after the lifting operation is completed. The power or propelling unit consists of a heavy duty "automatic" motor and controller direct connected to worm gearing. A circuit breaker and interlocking device works in conjunction with controller and brake, making it impossible to operate the truck when the driver is not in position.

This truck is built in 6000 and 10,000 lb. capacities. The battery box accommodates several sizes of either Edison or Exide batteries, the particular battery for the truck being determined by the character of the service for which the truck is used.

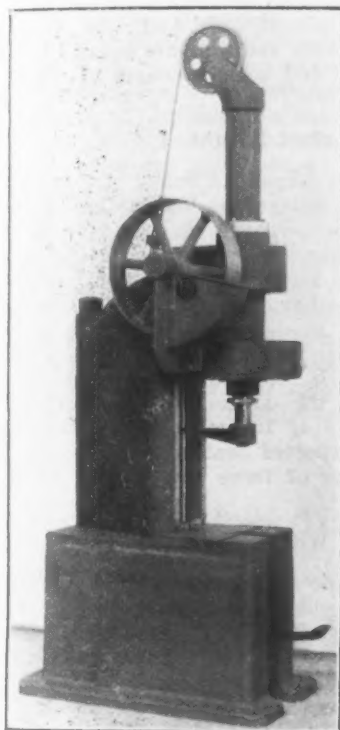
Atlas Steel Corporation Moving Charleroi Plant to Dunkirk

Atlas Steel Corporation has decided to concentrate its manufacturing activities at its Dunkirk, N. Y., plant and has started to dismantle its Charleroi, Pa., plant and to transfer the equipment to Dunkirk. The Charleroi plant was purchased from the Universal Steel Co., Bridgeville, Pa., by the Electric Alloy Steel Co., a Youngstown, Ohio, organization headed by Louis J. Campbell, son of James A. Campbell, president Youngstown Sheet & Tube Co. About a year ago this company and the Atlas Crucible Steel Co., Dunkirk, were merged under the name of the Atlas Steel Corporation. The Charleroi plant has been idle much of the time since the first of this year.

New Screw-Driven Arbor Press

The Fox Machine Co., Jackson, Mich., has placed on the market the power press illustrated, which is available in two sizes, 8 and 20 tons. In this machine, which is termed a "flexible" press, the power is said to be so applied that it is yielding, making a unit which is especially adapted for straightening, pressing in bushings, broaching and similar work. Speed of operation and the ease with which a pressure of 1 lb. or 20 tons may be applied are features emphasized, and the full pressure of the press may be applied without damage to the machine or tools.

In operating the machine the foot treadle is de-



Power Press in Which Speed of Operation and Ease with Which Pressure Is Applied Are Features. Pressure on the foot pedal causes the ram to travel down rapidly. After coming in contact with the work the foot pedal controls travel of ram and pressure applied to work

pressed, which causes the ram to travel down rapidly until it comes in contact with the work on the table, after which the pressure on the foot treadle controls the travel of the ram and also the pressure applied to the work. When pressure on the treadle is released a heavy coil spring causes the ram to travel up rapidly.

The base of the machine is of box type construction, and is provided with a slot under the center of the ram to permit flanged shafts to be placed on the table. The top of the base forms the table and supports the column, which in turn supports the ram case, the column being of triangular section, heavily ribbed to withstand torsional strains. Tie bolts fasten the table, column and ram case together in one unit. The ram case is ribbed and trussed,

as it is the opposite member of the table to take the ram thrust. The worm and worm wheel of the drive and the nut and friction band of the thrust mechanism are entirely inclosed.

The ram is of 0.50 carbon high-manganese chrome alloy steel, having a tensile strength of 135,000 lb. It has a quadruple thread of coarse pitch, which is intended to assure ample strength of section. The nose of the ram is equipped with a hardened steel thrust cap and a special nose piece is provided so that a variety of form tools may be used.

The rotation of the ram is obtained by a steel worm driving a phosphor-bronze worm gear, which is in turn secured to a long steel sleeve carrying the two keys that fit splines in the ram. This driving mechanism is inclosed in a grease case. The thrust of the ram is taken on an oversized ball bearing. The foot treadle, through levers, is connected to a band brake, pressure on the treadle bringing friction to bear on the brake drum, arresting the rotation of the drum and causing downward motion of the ram. When the ram comes in contact with the work, the pressure on the band brake regulates the slippage of the drum and directly governs the pressure of the ram.

On both sizes the maximum distance from the nose of the ram to the table is 20 in.; the stroke of the ram 18 in., and distance from table to the floor, 30 in. The diameter of the ram is 2½ in. and 3 in., and the dis-

tance from the center of the ram to the face of the column 8½ in. and 11 in. in the smaller and larger machines respectively. The base of the smaller machine is 22 x 40 in., the height, 115½ in., and the net weight 3000 lb. The same dimensions of the larger machine are 30 x 52 in., 123½ in. and 5000 lb. net.

Crystallization Effect on Galvanized Iron Sheets

Manufacturers of galvanized iron and steel goods, specially corrugated sheets in which it is desired to obtain the best appearance, have always sought to produce a zinc covered surface having large characteristic spangles. Failure to do this is a frequently recurring source of trouble and loss. The absence of, or the production of, only small spangles has been attributed to many causes. The quality of the steel, either the presence of sulphides and other non-metallic inclusions, or its condition produced by rolling and subsequent treatment, the pickling, either caused by impurities in the acid, by the occlusion of gas by the metal, the temperature of the bath and the purity of the zinc, have all been blamed for the failures.

A paper by J. D. Hannah and E. L. Rhead, presented before the Institute of Metals in September in Manchester, England, gives an account of a research to ascertain the real causes. Little assistance, say the authors, can be obtained from literature on the subject.

The research shows that the metal—iron or steel—has practically no influence on the result if the temperatures are satisfactorily maintained. After the conditions of good work had been established, samples of both good and bad sheet from which the zinc had been stripped, gave equally good results. It was shown that pure zinc did not yield the desired large spangles and that too high a temperature interfered by producing large quantities of a zinc iron compound which crystallized in needles on the metal and interfered with the development of the spangle. The presence of tin or aluminum—contrary to expectation and as commonly stated—did not produce the desired result, but the addition of lead did so immediately.

Judging from the known relationships between zinc and lead the authors argued that the separation of the impure zinc forming the layer on the metal sheet into conjugate solutions—lead rich and zinc rich—at the dipping temperature, and the method of subsequent crystallization, were the causes of the effects obtained. That this occurred was proved by the analysis of different types of spangle occurring on the same sheet, and by the observed differences in the rate of attack of different spangles forming the coating. The separation is attributed to the difference in the surface tensions of the two solutions. That such differences exist was proved by experiment.

Proof of the hypothesis is furnished by the fact that bismuth, the only common metal that resembles lead, more or less, in its relations with zinc, produces similar effects. The temperature at which good results can be obtained is limited by the tendency to form excessive amounts of the iron zinc compound previously referred to, and the time occupied in dipping and cooling.

Foundry and Machine Shop Labor

Reports to the Department of Labor covering 351 foundries and 429 machine shops, and covering 32,166 employees in the foundries and 58,914 in the machine shops, give average full time hours per week as 52.4 for men and boys in foundries, 50.8 in machine shops, and 49.2 for women in both foundries and machine shops. The average hourly earnings in foundries amounted to 55.9c. for men and boys and 40.4c. for women. In machine shops these figures were respectively 55.6c. and 36.6c. The average full time earnings per week in foundries are given as \$29.29 for men and boys and \$19.92 for women. For machine shops the figures are \$28.24 for men and boys and \$17.97 for women.

First Japanese Buying Activity Appears

**Demand for Gas Pipe and Sheets—Inquiries for Cast Iron
Pipe, Nails, Light Rails and Wire—Several Hundred
Motor Trucks Bought**

NEW YORK, Oct. 23.—A genuine buying movement by Japan seems to have started in the past week, but it is questioned in some quarters whether it will continue, or, when immediate needs have been satisfied, there will follow a brief period of quiet, preceding the purchase of needs for more permanent construction. The present activity, as far as can be ascertained, is confined to purchases by warehouses in Osaka, Kobe and other cities, whose stocks have been reduced by recent heavy demand for emergency material.

In addition to these purchases there are a few inquiries for light rails and a heavy demand for gas pipe. The inquiry of the Imperial Government issued through the Japanese Embassy at Washington and disseminated by the United States Department of Commerce has been considerably curtailed, according to Japanese officials and may not exceed 20,000 to 25,000 tons of material, compared with an original estimate of 60,000 tons. Some confusion apparently prevails over this tonnage and the method that will be pursued in placing it. Imperial Government representatives in the United States are now conferring on plans for awarding this business and whether to deal directly with makers or through Japanese export and import houses, the usual procedure.

Emergency Material Predominates

Inquiries now in the market from Japan include black sheets of Nos. 28, 30 and 31 gage, large tonnages of gas pipe, wire nails, plain and galvanized wire, motor trucks, etc. Concurrent with the revival of Japanese trade, the Chinese markets are exhibiting renewed life, although on a much smaller scale than in Japan. Chinese merchants are actively inquiring for wire shorts and second-hand materials, but exporters report only small tonnages available. Particularly in the East it is difficult to obtain anything like sufficient second-hand plates, sheet bar crop ends and plate cuttings, all of which are popular with Chinese buyers. A few inquiries have been received for crates of galvanized sheets and a general interest in other materials is more apparent today than for some time past.

Heavy Buying of Black Sheets and Pipe

From Japanese purchasers inquiries for black sheets have reached fairly large proportions, ranging in size from as small as 50 ton lots up to 1000 tons to an inquiry. British sellers, it is reported, are unable to offer delivery until well into next year. Actual business booked in black sheets in the past week to ten days has undoubtedly been large. One export house reports a total of 3000 tons of various light gages placed with American mills, another a total of 4000 tons, another about 1500 to 2000 tons and another about 2500 tons. Demand for gas pipe is also reported to have been heavy and a large export interest is said to have booked several thousand tons in the past week. One company's export department reports heavy bookings of various domestic sizes of gas tubing and there are inquiries current for about 1,000,000 ft. in one instance and about 500,000 ft. in another. There is also prospect of a demand for cast-iron pipe, evidenced by a recent inquiry in the New York market for 2000 tons of 10-in. to 24-in. water pipe.

Inquiries for light rails are numerous and some business has been placed. Among the tonnages under inquiry is 25 miles of 60-lb. rails, another for 26 miles of 20-lb. and a recent purchase was made by the Nagoya Railroad, which placed 15 miles of 60-lb. rails with an American mill through an exporter in New York. Report of the award of the 93-lb. and 122-lb. rails for Kobe municipality, bids on which were opened Oct. 15, has not yet been received.

Considerable activity has taken place in purchases of motor trucks through official sources, probably about 300 trucks having been bought thus far. Included among the sellers are Mitsui & Co., 50 trucks; Takata & Co., 60; Mitsubishi Shoji Kaisha, 50, and Kongo-Shoki Co., 50. It is reported that about 100 more are to be bought. Some tin plate has been placed with American mills by exporters in the past week and bids are being submitted on numerous small and large tonnages of wire nails and wire.

Structural Steel Bought

Apparently some of the buying of heavy structural steel may not be as long delayed as was at first believed. Among recent orders booked by export houses was 800 tons of heavy beams taken by Takata & Co. for Kure arsenal of the Imperial Government. The arsenal, which is near Hiroshima, about 150 miles south of Osaka, was far from the devastated area, but the present purchase, it is believed, is for the erection of an additional building. It is reported that the government has a tool list for this arsenal in preparation, which will include upward of 100 machines. Another machine tool inquiry is reported that includes a large number of lathes. Neither of these lists can be confirmed.

Reconstruction Will Be Extended

"It is estimated in Tokio that the rebuilding of the devastated area of Japan will be extended over a period of five to seven years," says Commercial Attaché James F. Abbott in a recent communication. "The full employment of labor during that period, it is believed, will cause great prosperity throughout the Empire. Plans and specifications for the rebuilding of the affected area are being drawn up at present by the capital restoration board and it is expected that they will be completed in time to be submitted to the Diet when it convenes on Nov. 10.

"The shipbuilders and electrical industries were seriously damaged by the earthquake and the demand for electrical equipment is heavy at present. It is stated that the Government will probably make direct purchases of lumber and steel products in the United States.

"It is reported that considerable profiteering is going on, especially at Kobe, in spite of strict measures adopted by the Government to prevent such action. The Tokio Chamber of Commerce estimates an increase of 12 per cent in the average retail prices of 44 representative commodities, as compared with Sept. 1, while they are 5.6 per cent greater than on Oct. 15 of last year.

Yokohama Again Active as Port

"As a result of the heavy demand for shipping in transporting reconstruction materials, charter rates have advanced considerably, especially on lumber shipments. Yokohama is now handling import and export cargo in considerable quantities, and it is expected that it will resume its importance as a shipping port. The docks and warehouse at Kobe are reported to be somewhat congested as a result of cargoes being diverted there from Yokohama."

The General Commercial Co. of China, 9 Hankow Road, Shanghai, China, importer of iron and steel products, such as mild steel bars, galvanized and black sheets, plates, tin plate and copper, is desirous of obtaining the connection of an American exporter as a buying agent.

JAPAN AFTER THE EARTHQUAKE

Total Loss Placed at \$915,000,000—Mostly Easy to Replace in Kind

In a review of the Japanese losses and conditions of restoration made by the Far Eastern Division of the Department of Commerce, the wealth of Japan is estimated at 98,846 millions of yen, of which the four provinces affected by the disaster accounted for 14,107 millions. Apportioning the loss by percentages of different types of property, varying from 60 per cent of the buildings, furniture, machinery, etc., in those four provinces to 0.1 per cent of the land, the total loss is placed at 13 per cent of the wealth of the four provinces or 1.9 per cent of the wealth of Japan. The figure is given as 1865 millions of yen or \$915,000,000.

Many of the items are regarded as capable of easy reproduction, with a minimum expenditure for raw material, but considerable expenditure of Japanese effort. This includes the buildings, furniture, agricultural products, and many other items, aggregating 1461 millions, or approximately 80 per cent of the losses.

The study points out the fact that building construction in Japan is greatly cheaper than in the United States, because of the light construction of the buildings and the small amount of material going into them. No lath is used and the lumber is much less heavy than in American buildings, because of there being only one or two stories in most cases. The sliding panels forming partitions and in some cases exterior walls have merely a framework of wood, while the rest is Japanese

paper. Similarly, with regard to furniture; many Japanese rooms contain no furniture of a structural type. There are no beds, practically no tables, very few chairs and other pieces of furniture indispensable in our homes.

Japan's capacity to finance rebuilding may be gaged by the fact that the deposits in postal savings banks a month before the disaster amounted to \$550,000,000. The internal debt of the Government in 1920 was about \$741,000,000, while the external debt was approximately \$655,000,000. In addition to the savings banks, large amounts of Government bonds are held by Japanese individuals, the total, as shown above, exceeding the external debt of the country. The banking system is said to be so well organized that little difficulty need be apprehended.

As concrete and steel buildings proved structurally sound against the earthquake, and will probably in the future carry a much lower insurance rate than other types of construction, there is every possibility that the larger factories and office buildings will be so built. Japan produces portland cement in exportable quantities and imports practically none. The production in 1921 amounted to 7,686,136 bbl. In steel, however, Japan imports heavily, particularly from the United States.

Agricultural crops, particularly rice, silk, barley, wheat, fruits and other foods, totalled nearly \$2,000,000,000 in 1921, these having been untouched by the disaster, and it is noteworthy that the amount of a single year's product in agriculture exceeds the total estimated loss by the earthquake and fire.

BELGIAN TRADE QUIET

Business Affected by Exchange Fluctuation—Pig Iron Weaker—Price Tendency Generally Downward

BRUSSELS, BELGIUM, Oct. 12.—The variation of exchange rates, of the pound sterling in particular, is causing much difficulty in trading. More than ever attention is turned to the stock exchange. Last Wednesday, Oct. 10, the rates continued unchanged, but business was quiet with a weaker price tendency than in the preceding week. Numerous works are making offers of material for early delivery. Some lines of business are completely paralyzed by exchange rates as some of the prices quoted are higher than the parity of the pound.

Pig Iron.—The tendency is toward lower prices, particularly in basic grades for which the current quotation is from 410 to 420 fr. British traders, however, will not contract at more than 400 fr. This weakness is attributed to the news that some of the Lorraine and Luxemburg blast furnaces are soon to be blown in. Satisfactory demand is reported in casting pig iron, and prices are fairly well maintained at 450 to 460 fr., delivered or f.o.b. Antwerp.

Semi-Finished Steel.—The market is unstable and between various mills prices differ from 75 to 100 fr., according to activity. The Hadir Society (Luxemburg-Differdanze) has made important concessions on prices in order to book orders totaling about 90,000 tons. But generally prices show a marked upward tendency. Current quotations are about as follows:

	Fr. Per Metric Ton
Ingots	510 to 530
Blooms	540 to 560
Billets	570 to 590
Targets	600 to 610

Finished Material.—Prices are unchanged with a slight tendency to weakness. Plants with the best backlog have only work left for about two months. The following prices per metric ton are current:

Bars and angles.....	720 to 725
Beams	685 to 690
Rods	900
Hoops, base	975

Sheets.—Very little activity is noted and less firmness in prices than during the previous week. Prices

are as follows, per metric ton for basic material; open-hearth 25 fr. per ton higher:

	Fr.
5 mm. and heavier	750 to 760
3 mm.	800 to 820
2 mm.	850 to 875
1.50 mm.	950 to 975
1 mm.	1,150 to 1,175
0.5 mm.	1,325 to 1,350

Furnaces in Blast

Of 56 furnaces existing Oct. 1, 41 were in blast, 3 out, 12 under construction or repair, showing no change from September. On Oct. 1, 1913, of 58 furnaces existing 50 were in blast and 8 out. The production for August is estimated at about 215,000 tons.

Krupp Interest in Mexico Denied

PARIS, FRANCE, Oct. 12.—Published reports both in the United States and in Europe that the Krupp works of Germany were endeavoring to secure control of the Monterey Iron & Steel Co., located about 100 miles below the United States-Mexican frontier, are declared to me by the Krupp firm to have no trace of foundation. The reports date back as far as March of last year when a Mexican newspaper published the rumor. Now the statement appears in a Washington dispatch to a metropolitan journal, and this last report alleges that the Krupp objective is invasion of the South American market with cut price steel products. The Washington dispatch declares that the developments are being watched with the closest scrutiny by the Government and that developments indicate that the negotiations have been virtually closed by representatives of the Krupps.

I personally turned over this last published statement to the Krupp directorate and, after making a written denial of any truth in the report, that firm added: "We are far too much engaged in overcoming the difficulties in our own district to entertain such extravagant plans as are imputed to us."

It has become somewhat a fashion of late to make a bogey of the name of Krupp, and I gather that this is not appreciated at these works. One English paper has become more or less notorious by its cock-and-bull

stories as to Krupp expansion and I would therefore counsel reserve whenever one reads of Krupp purposes and intentions. My own observations based on recent inspections at the Essen plant leave no doubt in my mind that the Krupp directorate has got its hands full to hold together that which it has without casting about for new fields to exploit.

CAPT. GODFREY L. CARDEN.

French Mines Being Restored Rapidly

Remarkable progress has been made in reconstructing the French mining industry, systematically destroyed by the invading Germans, according to George S. Rice, chief mining engineer of the United States Bureau of Mines, who has just completed a prolonged study of conditions in France, Great Britain, Belgium, Germany, Poland and Czechoslovakia. As a result of the splendid engineering skill in restoration, some of the finest coal-mining plants in the world have been

constructed in the north of France. Thousands of miners' houses have been built, replacing those destroyed. These houses are attractive and most of them have gardens redeemed from trenched and blasted ground. Such attention has been paid to welfare projects that the miners of northern France are better housed than miners elsewhere.

Underground, the mines have been recovered to such an extent that they are producing about 70 per cent of the normal coal output. When all of the water has been pumped out, the coal production of northern France will be greatly increased over pre-war. Ingenious cementation methods have been employed in restoring mine shafts in which the iron linings had been blasted to admit water, which flooded the mine.

Novel methods for obtaining petroleum, involving the mining of oil sands and their subsequent treatment at the surface, were observed by Mr. Rice in Alsace and near Hanover. This makes possible a greater recovery of the petroleum, two-thirds of which, it is estimated, is left in the ground after ordinary extraction by wells.

BUSINESS TREND DOWNWARD

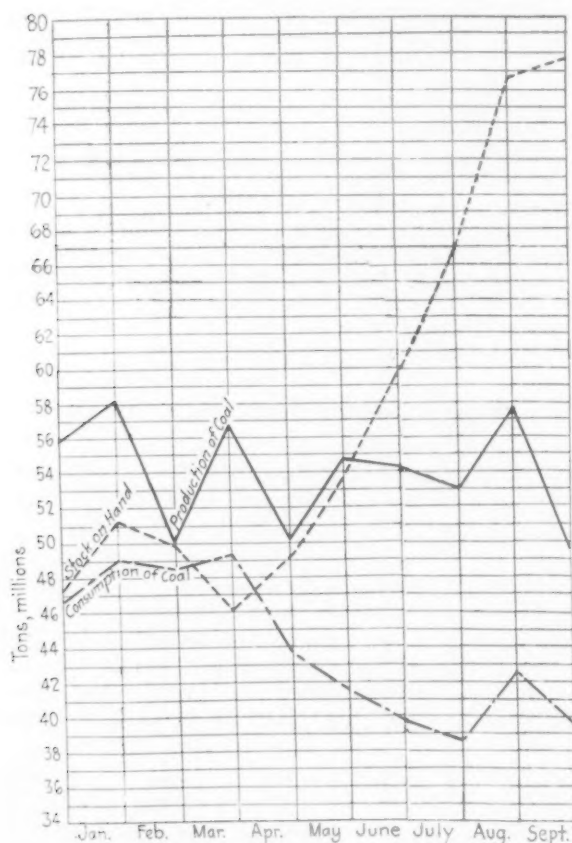
Survey of National Association of Purchasing Agents Shows Drop in October

The momentum in business gained during August was lost in September, with indications that there will be no gain in October, according to the monthly survey of the National Association of Purchasing Agents. This survey, which is directed to consumers of indus-

as compared with the preceding month. These percentages do not indicate improvement for October, as they show the business trend to be downward.

"The lines on the chart showing the consumption and stocks of coal are drawn from data supplied from all parts of the United States and Canada by commercial consumers of coal, and represent all lines and branches of business and industry. The line showing the production of coal is drawn from figures given out by the United States Geological Survey.

"The chart includes both bituminous and anthracite coal, and covers the total stocks in the hands of commercial consumers, the total tonnage consumed and the total production by months. (Coal consumed by the householder and his stocks are not included.)



trial coal in the United States and Canada, shows that business taken as a whole fell off 7.13 per cent in September as compared with August. For August an increase of 9.87 per cent over July was recorded.

"Indications were at that time that an upward swing in business was well under way," says the report. "The contrary has, however, proved to be the case, due to the sudden turn and dropping off of some lines of business.

"Of the total number of reports received from industrial coal consumers for the month of September, 37 per cent indicated increase in business, 22 per cent remained stationary and 41 per cent showed decreases,

Stocks on Hand		Net Tons
May 1, 1923.....		49,022,000
June 1, 1923.....		53,669,000
July 1, 1923.....		59,723,000
Aug. 1, 1923.....		66,937,000
Sept. 1, 1923.....		76,480,000
Oct. 1, 1923.....		77,620,000
Consumption		Net Tons
Month of April.....		43,659,000
Month of May.....		41,532,000
Month of June.....		39,720,000
Month of July.....		38,937,000
Month of August.....		42,750,000
Month of September.....		39,700,000
Production		Net Tons
Month of April.....		50,209,000
Month of May.....		54,735,000
Month of June.....		54,309,000
Month of July.....		53,062,000
Month of August.....		57,547,000
Month of September.....		49,527,000

(Of the September production 46,620,000 tons was soft coal and 2,907,000 tons hard coal.)

"The figures shown for stocks and consumption are estimates, based on monthly reports by consumers.

"The stocks of hard and soft coal in commercial consumers' bins on Oct. 1, were 1,140,000 tons greater than on Sept. 1. Based on the rate of consumption in September, the stocks on Oct. 1 were sufficient to meet the industrial requirements of the United States and Canada for a period of 58½ days on the average.

Coal Market Conditions

"The bituminous market during the month of October continued soft and sluggish, prices finding lower levels, and it does not look as though prices could stiffen any for some time, as production continues to exceed consumption by a considerable margin, and with very heavy stocks in consumers' bins, car supply ample and mines operating short time for lack of orders.

"The first week of October was marked with a sharp decline in the production of soft coal: The total output is estimated at 10,720,000 tons, a decrease of 565,000 tons, or 5 per cent. The chief factor contributing to the decline appears to have been a further softening of the market, resulting in part from the termination of the strike of anthracite miners."

CONTENTS

October 25, 1923

Automatic Conveying in Material Handling	1105
Vertical Units and Various Types of Horizontal Conveyors in Intensive Use in National Cash Register Works—Factory Parcels Post	
Filtering Dirty Gas Through Flue Dust	1111
Dry Cleaning of Blast Furnace Gas, Based on Tests at Monessen Plant of Pittsburgh Steel Co.—Calculation of Areas Required	
Preparing to Fight Pittsburgh Basing Plan	1117
Politics Likely to Figure in Agitation in Congress at Approaching Session—Appeals Made to Farmers to Arouse Opposition	
Italy Depending on Rehabilitation Through Work	1121
Large Excess Capacity of Plants Await in Part the Development of Water Power—Views of the Former Ansaldo Head	
First Japanese Buying Activity Appears	1124
Demand for Gas Pipe and Sheets—Inquiries for Cast Iron Pipe, Nails, Light Rails and Wire—Several Hundred Motor Trucks Bought	

Record Freight Haulage.....	1109	Crystallization on Galvanized Iron Sheets.....	1123
Trade Information	1110	Foundry and Machine Shop Labor.....	1123
Coming Meetings	1110	Japan After the Earthquake.....	1125
Southern Metal Trades Association.....	1110	Krupp Interest in Mexico Denied.....	1125
Unemployment Insurance	1110	Belgian Trade Quiet.....	1125
Automobiles in Farming Communities.....	1114	Business Trend Downward.....	1126
Pig Iron Stocks.....	1114	French Mines Being Restored Rapidly.....	1126
Structural Steel Sales in September.....	1114	Editorials	1128
Westinghouse Establishes New Division.....	1114	The Principle of Authority—Foreign Trade Possible—Naval Power Cut in Half—The Wheat Alarm.	
New Gear Hobbing Machine.....	1115	Further Refutation of the "2 Per Cent 65 Per Cent" Claim as to Wealth.....	1130
Power Unit for Operating Conveyors.....	1118	Correspondence	1131
Dolomite for Refractories.....	1118	The Wealth of the Rich—Wealth a Trust in the Interest of the Many—Future of the American Society for Steel Treating.	
Iron Deposits Discovery in Ontario.....	1118	Assigned Car Case Reopened.....	1133
Device for Spotting Cars.....	1118	British Iron and Steel Market.....	1133
Markets Die Casting Machine.....	1119	Davis Machine Tool Co. Sold.....	1137
Points Similar to Those of Claire Furnace Case Discussed	1119	Railroad Equipment Business.....	1148
Bids for Naval Vessels.....	1120	Fabricated Steel Buying.....	1148
Wholesale Prices in September.....	1120	Automobile Production in September.....	1149
Large Use of Blast Furnace Slag in England	1120	Ford Plans to Build in St. Paul District.....	1149
Bookings on Steel Castings in September.....	1120	Steel and Industrial Stocks and Finance.....	1161
Republic Iron & Steel Co. Earnings.....	1120	Youngstown Sheet & Tube Co. to Build at Indiana Harbor.....	1151
Preparation of Super-Refractories.....	1120		
Steel Furniture Stock Shipments.....	1120		
Truck Designed for Handling Wire Reels.....	1122		
Atlas Steel Corporation Moving Charleroi Plant	1122		
Screw-Driven Arbor Press.....	1123		

Iron and Steel Markets	1134
Comparison of Prices	1135
Prices Finished Iron and Steel, f. o. b. Pittsburgh	1146
Prices of Raw Materials, Semi-finished and Finished Products	1147
Non-Ferrous Metal Market	1149
Personal Notes	1150
Obituary Notes	1151
Machinery Markets and News of the Works	1152
New York Jobbers' Prices	1162

ESTABLISHED 1855

THE IRON AGE

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Member of the Audit Bureau of Circulations and of
Associated Business Papers, Inc.

Published every Thursday by the IRON AGE PUBLISHING CO., 239 West 39th Street, New York

F. J. Frank, *President*

PRINTED IN U. S. A.

George H. Griffiths, *Secretary*

Owned by the United Publishers Corporation, 243 West 39th Street, New York. H. M. Swetland, *Pres.* Charles G. Phillips, *Vice-Pres.* A. C. Pearson, *Treas.* F. J. Frank, *Secy.*

BRANCH OFFICES—Chicago: Otis Building. Pittsburgh: Park Building. Boston: 410 Unity Building. Philadelphia: 1420-1422 Widener Building. Cleveland: Guardian Building

Detroit: 317 West Fort St. Cincinnati: First National Bank Bldg. Buffalo: 833 Ellicott Square. Washington: 26 Jackson Place, N. W. San Francisco: 320 Market St. London, Eng.: 11 Haymarket, S.W.1.
Subscription Price: United States and Possessions, Mexico, Cuba, \$6.00; Canada, \$8.50; Foreign, \$12.00 per year. Single copy 25 cents.

Entered as second class matter, June 18, 1879, at the Post Office at New York, New York, under the Act of March 3, 1879.

The Principle of Authority

IN the opinion of Ferrero, the eminent Italian historian and philosopher, the loss of the recognition of the principle of authority was one of the greatest misfortunes that culminated with the war. Dr. Nicholas Murray Butler, in a recent address, expressed a similar thought in his reference to the way wherein now "men are grasping at dictatorship as a substitute for democracy and a relief." Already Italy, Spain and Germany have cheerfully abolished parliamentary government and have welcomed the assumption of leadership by a strong man who is capable of telling the people what they must do and enforcing obedience. In Greece and Turkey there has come about what is practically the same thing, though not in name. Russia, also, reverted to this, but in a perverted way, which, of course, is a great danger. In English-speaking countries democracy, so-called, has been made practicable by the two-party system, but even in them we can discern a crumbling of the principle of authority in the splitting of the great parties in Great Britain and the growth of "blocs" in the United States.

When people trying to govern themselves break up into groups seeking wilfully to have their own ways, the inevitable result is impotence, and if that goes too far, as it did in the first Russian Republic and more recently in Germany, there must ensue a desire for something akin to a dictatorship in order to get anything done. We are not by any means arguing in favor of such an eventuality, but are merely pointing out what is bound to happen. Italy seems to be in the process of recovery from chaos and despair through a beneficent dictatorship, but the Russians passed from the impotence of the Kerensky government to the malignant despotism of Lenin. The precarious position in which the world finds itself is due, Dr. Butler thinks, to the "sea of ignorance" in which humanity is immersed by powers greater than itself; and as Ferrero thinks by the sacrifice of the principle of authority.

At the present time the fate of the whole German people is hanging in the balance. At no time since the Armistice has Germany earned its own living. Its relatively small payments on repara-

tions account and its deficit in domestic economic budget have been met out of liquidation of the residue of internationally negotiable property and out of the sale of German currency to foreign speculators. The aggregate of the sums taken out of foreign countries in the last way is huge. It has been estimated that the American speculation in German marks is measured by something like a billion dollars. It was when the Germans came to the end of their rope in this respect, toward the close of 1922, that they defaulted in reparation payments, which was followed by the French and Belgian occupation of the Ruhr.

This situation in Germany is explained by the Germans not having been hard enough at work. Numerically there has been a high rate of employment, but the performance of work in the aggregate has been inferior to what it used to be in pre-war times. This has been largely ascribable to the shortening of working hours as a consequence of the statutory eight-hour day enacted in the new republic. It has been demonstrated that the German people cannot earn their living, much less pay anything on reparations account, by working only eight hours a day, which has proved to be a diminisher of production.

The present political turmoil in Germany focuses upon this simple economic principle. Some of the political parties are so enamored of the short working day as a benefit to the working man that they are blind to the imminence of the working man starving to death while enjoying the doctrinal blessing. The industrialists, who are called hard boiled, are trying to avert national suicide, which would involve the innocent along with the fools. Stresemann has been given dictatorial powers by the Reichstag except with respect to the eight-hour day. The reservation as to it may be viewed, however, as a gesture for the saving of socialistic faces.

There is the clear-cut prospect that Stresemann will put all Germans to work on long-day time or else that the German people will dissolve in disaster. Either way it is certain that Germany has exposed the fallacy of any people shortening their working hours and retaining their previous scale

of living. Even in the United States, which suffered least by the war, this would still be a fallacy.

Foreign Trade Possible

THE sudden swing in September to a large excess of merchandise exports over imports furnishes practical proof of what has been urged on theoretical grounds, that a large foreign trade for the United States is possible despite our tariff and the depreciated currencies of most foreign countries. The point is that business has adjusted itself to conditions.

Our favorable merchandise trade balance exceeded four billion dollars in 1919, the calendar year after the war, and diminished almost continuously until it disappeared last March, in which month there was an excess of imports of \$56,551,000. The excess of imports continued for three months more. July then showed an export excess of \$15,575,000 and August one of \$35,914,000. The report for September now shows \$126,000,000 more exports than imports. The change from August to September, amounting to \$90,000,000, is of more importance, even though both months showed export excesses, than the mere change from one side to the other.

The great increase in the trade balance from August to September occurred chiefly through exports increasing, though imports decreased somewhat.

The interest of the country as a whole and the interest of individual business establishments are not necessarily the same in this matter of export trade, although there are many men who would like to believe that they are. It is not only in the matter of foreign trade that men sometimes strain a point in their preaching. Employers will be told that they should pay high wages because that increases buying power and thus benefits all. On the same day workmen will be told that they should not seek high wages, for that increases the cost of living, and is bad for all. We are all competing, but somehow we seem to like to put in the background the fact that there is competition. Each employer wishes to keep down his expenses and each employee wishes to increase his income. That is competition. In foreign trade, circumstances permit exports, but greater exports of one commodity will not encourage greater exports of other commodities—rather the reverse.

The showing of recent statistics of our foreign trade is that large imports are possible, and still larger exports. The new tariff has not shut off imports. Imports in the first nine months of this year were at the rate of \$3,880,000,000 a year, just short of our 1919 imports, much short of the 1920 imports and far in excess of the imports in either 1921 or 1922.

Exports in the first nine months of this year were at a rate far below exports in 1919, 1920 and 1921, but slightly above those of 1922. For the nine months the favorable merchandise trade balance is \$35,466,000. It is commonly admitted that, ignoring our uncollectible debts, we do not need any merchandise balance to break even. If we wish to invest capital in foreign countries merchandise exports are the means, just as merchan-

dise imports are the means if we wish to collect debts.

Currency depreciation in foreign countries may have placed difficulties in the way of our foreign trade, but there have been adjustments whereby in the case of most countries there are no barriers. The Federal Reserve Board's computation of index numbers for commodity prices in foreign countries, converted to a gold basis by computing from exchange rates, show 156 for England, 108 for France and 178 for Japan, against 159 for the United States, 1913 being 100 in all cases. Thus Japan is well able to buy from us and France well able to sell to us, while in the case of England there is as much freedom either way as in 1913.

Naval Power Cut in Half

ADVERTISEMENTS of the Navy Department covering 21 battleships and battle cruisers to be scrapped, in accordance with the Treaty Limiting Naval Armament, call for sales extending from Oct. 25 to Nov. 30.

It is worthy of note that the designed displacement of these 21 ships, 10 of which are still on the building ways, is greater than the displacement of the 18 ships which the United States is permitted to retain under that treaty. The 21 ships to be sold aggregates 610,050 tons, or an average of 29,050 tons each. The 18 ships to be retained as the backbone of the American navy aggregate 525,850 tons, or an average of 29,214 tons each.

The ships to be sold would have had a total broadside fire amounting to 292,250 lb. of metal on one discharge, while the ships retained can present a broadside of only 268,380 lb., or nearly 10 per cent less. The broadside of the ships being sold represents the fire of 335 guns against 314 guns retained in broadside. Included among the 335 were no less than 104 16-in. guns—the most powerful weapons ever built. Only 24 16-in. guns remain in our fleet, and these are individually less powerful than the ones discarded, because they are shorter guns.

Thus does the United States set the pace in reducing, insofar as possession of many powerful ships constitutes a menace to world peace, the probability of international conflict.

The Wheat Alarm

IT is difficult to grow excited over the wheat situation when some of the other alarms we have had in the past are recalled. In May, 1890, C. Wood Davis wrote that prospects were that home requirements would absorb all our food products by the end of the century, that is, in a decade from the viewpoint of a third of a century ago.

In 1898, before the British Association at Bristol, Sir William Crookes predicted a wheat scarcity for the world and said of the United States: "It is almost certain that within a generation the ever increasing population of the United States will consume all the wheat grown within its borders and will be driven to import." Later, James J. Hill issued more impressive and extensive warnings.

Early in the present century there was a scare

about the exhaustion of our iron ore. Nearly half the life expectancy assigned to the industry by one voluminous magazine writer has already elapsed. We have gotten over the scare.

Wheat will take care of itself, if there is anything to take care of. The wheat farmers represent only a small part of our agricultural activity. For the country as a whole there is nothing in the wheat scare, as can be shown by a very simple computation. Last year's wheat crop at 862,000,000 bushels and the farm price of Oct. 1, 1922, of 90.4 cents made \$780,000,000. This year's wheat crop at 788,000,000 bushels and the Oct. 1, 1923, farm price of 93.2 cents makes \$735,000,000. The 6 per cent decrease is not precisely calamitous. Furthermore, the corn crop, at 2,891,000,000 bushels last year at 61.6 cents

and 3,021,000,000 bushels at 85.7 cents this year, increases from \$1,780,000,000 to \$2,590,000,000. The increase is \$810,000,000, or more than the entire wheat value. That is, wheat could have disappeared entirely and the increase in corn would have more than offset the loss which would have been involved.

There is nothing harsh in making this little arithmetical computation. Even if it were granted that the politicians who are exercised about wheat really love the wheat farmer, no one doubts that the sellers of commodities who have expressed an interest in wheat are really concerned chiefly with the buying power of the agriculturists. They are not particular whether the farmers get money from wheat or from corn so long as they have money to spend.

Further Refutation of the "2 Per Cent 65 Per Cent" Claim as to Wealth

[From a review of Dr. Ingalls's article by "Scrutator" in the *Chicago Tribune*, Sept. 30.]

In the next number of *THE IRON AGE* W. R. Ingalls, noted mining engineer and economist, will publish an article effectively disposing of the formula that "2 per cent of the population own 65 per cent of the wealth of the United States." Mr. Ingalls shows pretty conclusively that they cannot own more than 30 per cent of the nation's physical wealth.

Readers of this column will recall that this formula, which some of our "progressives" have recently dragged from library shelves to the hustings, was discussed here and the opinion expressed that it would not hold water.

The writer used census figures as to the ownership of farms and urban homes, the known figures as to the ownership of bank deposits, insurance policies and corporation securities, and pointed out that the character of other property such as automobiles, furniture and clothing, indicated its widespread ownership.

The "2 per cent, 65 per cent" formula was derived from probate court statistics. Only this week the writer has received from an Iowa attorney a most crushing refutation of the whole theory of determining the distribution of wealth by such methods, and also an acknowledgment from one of the authors of the formula, that he is of a different opinion now. . . . Mr. Ingalls's paper, which is a most careful extension of the analysis essayed in this column, with an entirely different angle of approach in addition, ought to set the "2 per cent own 65 per cent" slogan to rest, but it will not. Like the myth of the 25,000 "war millionaires" it has become a legend and therefore immortal.

The Service of Wealth to Society

[From an editorial in the *American Metal Market*, New York, Oct. 18.]

The claim that 2 per cent of the people of the United States own 65 per cent of the wealth has been thoroughly refuted by Dr. W. R. Ingalls in a well written article in *THE IRON AGE* of Oct. 4. Those who are at all acquainted with Dr. Ingalls's methods in compiling and analyzing statistics as, for instance, in his scholarly work, "Wealth and Income of the American People," will have no hesitancy in accepting his conclusion that the claim of 2 per cent of the people owning 65 per cent of the wealth is wide of the mark.

When this subject is under discussion there is another thought that should be contributed. Those who make this claim of 2 per cent owning 65 per cent make the claim purely because they infer that this is all wrong. Probably they would claim it to be more or

less wrong for 2 per cent to own 20 per cent or indeed any more than 2 per cent.

Any one who is disposed to think at all on this subject should read carefully a little book that has been widely circulated in the past few years: "The Things that are Caesar's; a Defense of Wealth" by Guy Morrison Walker. With great clearness the point is brought out that much of the so-called "wealth" is the tools of workmen. As wealth increases workmen have better tools and can produce more. They, and society at large, profit by this.

As wealth in the United States has increased, a week's wages has been able to buy more and more.

The main thing is that the wealth exists and performs service for society. It is a detail who owns it. Some of it is owned by those who have created it. To unscramble the wealth, to return machinery into iron ore in the ground, wood work to trees in the forest, and so on, would simply set us back to where we used to be, when men worked from dawn to dusk and got no more than a bare existence out of it.

To grab the wealth and distribute it would do an equal injustice to those from whom it was taken and those to whom it was given. It is idle to say that it was the workmen who created the wealth. The owners of coal land might as well say it as they, for the power derived from coal has had much to do with the creation of all the wealth there is today in the United States.

Public Control of Many Forms of Wealth

[From the leading editorial in the *New York Herald*, Oct. 15.]

"Two per cent of the people," announced Magnus Johnson shortly after his election to the United States Senate, "own 65 per cent of the wealth of the country." He stated it as an awful fact, portending revolution if conditions were not changed. Magnus apparently took this figure on faith from his friends LaFollette and Brookhart and Frear. It has become one of the major articles in the orthodox radical credo. But where did the figure originate, and what is its truth?

It was this last question that started Dr. W. R. Ingalls, author of the "Wealth and Income of the American People," on a quest, the results of which appear in the Oct. 4 issue of *THE IRON AGE*.

It is of course important to keep in mind that the question of how the legal title to the nation's wealth is distributed is not the same as the question of how the benefits of this wealth are distributed. The richest man is limited in his personal consumption. He can only wear a limited amount of clothes and eat a limited amount of food. When he reinvests his surplus it is devoted to social uses; it gives increased employment, builds more factories, increases the world's sup-

ply of goods. One does not have to be a stockholder in the railroads to ride on them or to ship goods on them. One does not have to own the theater in which one is amused. To find what an immense percentage of the people enjoy the wealth of the country one does not have to resort to statistics. One has merely to look around.

There is another aspect of this subject which should never be lost to sight. It has to do with control over the developed resources of the country as opposed to the ownership of legal title to them. All the great pub-

lic utilities of the land now in private ownership—railroads, electric light and gas works, street railroads and the like—are under rigid public supervision, which in many cases gives to the people through public officials far greater control over their operation and management than is possessed by the holders of their stocks and bonds. Manufacturers and the proprietors of numerous businesses are in the same general way restricted as to the uses to which their property shall be put and the manner in which their affairs shall be conducted.

CORRESPONDENCE

The Wealth of the Rich

To the Editor: In THE IRON AGE of Oct. 11 Frank J. Llewellyn contributes a thoughtful comment upon the editorial referring to my article in THE IRON AGE of Oct. 4. Mr. Llewellyn fears that my article, which in terms of high compliment he says robs the subject of all manner of doubt, may be employed as furnishing the final proof of the claims of those who want to "soak the rich." In other words, he considers that the difference between the true and fallacious percentages of the concentration of wealth is only one of degree.

Let it be so. The prime thing in our present state of affairs is the establishment of facts. Every one will agree that it is better to discuss things that are so than conjectures that are not. Facts, whether they be of engineering or economics, of the affairs of a single family or those of 27½ million in the aggregate, are often capable of different interpretations, and different persons will be guided by them in different ways. In the present instance we pass naturally from the field of quantitative economics into that of economic policy, or let us say simply politics.

My study made no attempt to measure changes in the distribution of wealth in this country. It is sufficiently an accomplishment to have established a reasonable survey as a starting point. Our present state of economic and statistical knowledge does not permit us to go much further. However, it is clearly indicated that in recent years, as one of the consequences of the economic upheavals of the war, there has been a wider distribution of our wealth.

Theoretically this is a good thing, but practically it may not be so. The conditions that have led to increased diffusion have been accompanied by enormous waste. There is a good deal of room for debate respecting the questions whether the people are happier with conditions of less wealth and greater diffusion or more wealth and less diffusion. In Russia and other parts of Continental Europe where land holdings have been subdivided production appears not to have increased but to have decreased.

In America conditions are quite different from those of Europe. We have none of the great landed estates that have come down by inheritance through centuries. Our wealth is more essentially industrial and is the result of brains and thrift. Our richest men are landlords to but slight extent.

The very creation of their fortunes has been beneficial to the people as a whole. Our American people would not be in their present enjoyment of automobiles to so great an extent if Henry Ford had not invented an ingenious mechanism and succeeded in producing it in an economic way. Nor should we have been able to operate our automobiles if John D. Rockefeller had not blazed the way to gasoline at a low price.

The concentration of great wealth in the hands of a few such men as Mr. Ford and Mr. Rockefeller is not economically detrimental but rather is it beneficial. Their personal consumption of it is so slight as to be negligible. In the main it is necessarily employed for the creation of more capital goods, such as railroads, factories and mines, which accrue to the advantage of

everybody. It is far better that things should be so than that these concentrations should be diffused with great waste in the process.

I have a good deal of esteem for my fellow citizens and a good deal of confidence in their rightmindedness. I have discussed this subject with workmen and have not discovered among them any jealousy of the rich or any objection to the concentration of riches providing that they have been honestly gained. None of us will dissent from the latter qualification. The opinion that I derive from these few personal discussions is supported by my observation that Henry Ford, who is our richest man, is also our most popular.

I am sure that there are no economic facts that we ought to conceal from our fellow countrymen. On the contrary, our great objective ought to be to get the facts before them, and it is our great problem how to do so. If we can succeed in this I am not afraid of any twisting of fact that demagogues may attempt. They will not get very far along on that line and will abandon it as soon as they discover that they are flouting the common sense of the people. Surely this is the best of all reasons for exposing fallacies.

W. R. INGALLS.

New York, Oct. 19.

Wealth a Trust Administered in the Interest of the Many

To the Editor: I was interested in the letter from Mr. Llewellyn which appeared in your last issue, suggesting that the reduced amount of wealth held by the so-called "rich" [as shown in the analysis made in THE IRON AGE of Oct. 4 by Dr. W. R. Ingalls], is still so large as to be unjust. To my mind, now that the amount of property held by the "rich" is approximately determined, emphasis should be given to the point that the holdings carry with them the duty and responsibility of management in the interest of large numbers of employees. Most of the radical speakers seem to hold the idea that the man of great wealth spends the money upon himself, whereas the fact is that the men who possess wealth which might be considered large enough to be dangerous are the very ones who usually live on a reasonable scale and work the hardest in the interest of the organization they control.

STERLING H. BUNNELL.

New York, Oct. 15.

Future of the American Society for Steel Treating

To the Editor: Having in view the solid growth of the American Society for Steel Treating, it is not surprising that the society feels well enough entrenched in its present position to look about for new fields to conquer. Since it has become necessary to amend its charter to conform with certain State laws, this favorable opportunity is being seized upon to redefine the scope of the society, and perhaps even change the name. Such open questions caused much animated discussion throughout the recent Pittsburgh convention, which apparently was valuable chiefly in showing the executive committee what was in the minds of the members.

Changes in the constitution and by-laws must be approved by referendum. Therefore in formulating their recommendations, the drafting committee undoubtedly will avoid jeopardizing the fundamental idea

responsible for the healthy growth of the organization. It might be well to ask, "What is this foundation idea?" Roughly stated, it is an effort to improve the art of steel treating by educating the practitioner, and by "practitioner" I mean workman and scientific researcher, foreman and laboratory worker, metallurgist and manager. Having been a close observer of the growth of the society, I feel sure that this idea is primarily responsible for the efforts of a goodly number of workers, the financial support from a hundred or more metallurgical corporations, and lastly, memberships from over 2000 "heat treaters." It appears obvious that future growth should be along lines which will alienate none of this support, but attract other men whose interests are closely affiliated with those of the present members.

Two different plans were argued at Pittsburgh, pro and con. In the first place, an effort may be made to gather in the non-ferrous metallurgists, that is, the "brass" men. Or on the other hand, the steel treaters may make a more determined effort to attract men working in the mills and foundries, the "steel" men.

It is an open secret that the Institute of Metals, interested in the production of non-ferrous alloys, is not altogether happy in its present association with the American Institute of Mining and Metallurgical Engineers. Could not its members be attracted to the Steel Treating Society? The community of interest is that heat treatment is not confined to steel, but benefits other alloys as well. This is an attractive theory, but unfortunately the history of technical organizations in England and America indicates that the relationship between the ferrous and the non-ferrous metallurgist is not particularly close. At any rate, in both countries a split occurred in times past, and separate organizations have since been stubbornly maintained, and in England prosper exceedingly. Study of metallurgical literature also indicates lack of cohesion in men and ideas in the steel trades and those dealing with other metals.

In view of these facts it appears doubtful whether members of the Institute of Metals would be attractive proselytes, despite the circumstance that brass sheet is annealed, and that some steel treaters may sometime be asked to quench duralumin!

Such developments as outlined above might be characterized as sidewise expansion. It would be far better for the Steel Treating Society to reach down deeper into their art, and gather in more of the men who are interested in making the steels and alloys which later must be heat-treated. Every heat treater has blamed his troubles on "poor steel" so often that if he is open-minded enough to join the society he ought to be glad to know something about the difficulties encountered in making an acceptable steel bar or a sound iron casting. On the other hand, the manufacturer has held the sack so many times that he ought to regard it as good business to join up more closely with his wide-awake customers in a mutual effort to improve profits by removing manufacturing troubles. From this angle, it would seem to be good business for the large corporations to get behind a movement which is primarily educational.

Furthermore, the technical men who will do the work ought to welcome the opportunity, for the steel industry has no technical association of national scope which is functioning in a manner worthy of the name. Without stating an opinion about the reason for this state of affairs, does it not make sense to suppose that hundreds if not thousands of men in steel and iron would give enthusiastic support to a society whose fundamental idea is an effort to improve the art of steel making and steel treating?

In conclusion I would plead that the Society for Steel Treating should strike its roots deep, rather than spread out at the top, having in mind that an oak will withstand a great tempest, but a poplar will fall before a small gust of wind.

E. E. THUM,

Linde Air Products Co.

New York, Oct. 18.

MODERATE IMPROVEMENT

Furnace, Steel Plant and Mill Conditions in the Mahoning Valley

YOUNGSTOWN, Oct. 23.—While still reflecting weakness in steel buying, operations of Mahoning Valley steel properties this week show a measure of improvement in some respects. In this district, plants of the Carnegie Steel Co. are averaging 80 per cent. The Trumbull Steel Co. is close to normal, with exception of four tin plate units, while the Sharon Steel Hoop Co. is operating all departments except three sheet mills.

Of the 46 blast furnaces in the Youngstown district, 27 are pouring. The latest to go down is the Grace stack in the Brier Hill group of the Sheet & Tube company. It is unlikely merchant furnaces which suspended the past 60 days will resume this year, owing to unfavorable conditions in the pig iron market.

Of the 51 independent open-hearth furnaces in the Mahoning Valley, 35 were scheduled at the beginning of the week for melting. All of the Bessemer departments are active, except that production is being kept below capacity through reduced number of heats or reduced working time.

The Trumbull company is operating its three strip mills on three 8-hr. turns. This week the Sheet & Tube company increased the number of active sheet mills from eight to twelve at its East Youngstown works, and is also operating five sheet mills at its Western Reserve plant in Warren. The 12-in. bar mill of the Sheet & Tube company, idle for some time, is also active.

Of 120 sheet mills in the Valley, 74 were scheduled this week. The Newton Steel Co., which has been operating all of its 20 mills, has reduced the active number to 14.

At its Girard, Ohio, plant, the A. M. Byers Co., Pittsburgh, is operating 80 of 88 puddling furnaces, this

representing the high point of the year. This situation is due to continued improved demand for the company's product and better labor supply.

Individual operations are:

Youngstown Sheet & Tube Co.—Five blast furnaces, 13 open-hearths, Bessemer plant, two plate mills, two merchant bar mills on single turn, 17 sheet mills, 10 tube mills, four skelp units, rod and wire department and puddle furnaces.

Republic Iron & Steel Co.—Four blast furnaces, 10 open-hearths, Bessemer department, plate mill, two light bar mills, two skelp mills, six tube mills and eight sheet mills.

Trumbull Steel Co.—One blast furnace, seven open-hearths, strip mills at 80 per cent; 15 sheet mills and 25 tin plate mills.

Sharon Steel Hoop Co.—One blast furnace, five open-hearths, four strip and six sheet mills.

A. M. Byers Co., 80 puddle mills and two skelp mills.

Newton Steel Co., 14 sheet mills; Falcon Steel Co., eight and Mahoning Valley Steel Co., six.

At Youngstown, the Carnegie Steel Co. is operating six blast furnaces, the Bessemer department, 13 open-hearths and the blooming mills, in the Ohio Works. At its New Castle property, two of four blast furnaces are pouring, the Bessemer plant and bar mill are active. At the Farrell, Pa., works, three blast furnaces, 14 open-hearths, the bar and skelp mills are active. The 17 bar mills divided between the Upper and Lower Union mills and the McDonald works are all in full operation.

Plants of the American Sheet & Tin Plate Co. at New Castle, Shenango, Farrell and Mercer are operating virtually to capacity, with 90 tin mills and eight sheet mills active. The Farrell plant of the American Steel & Wire Co. is averaging 75 per cent.

Fabricating, car repair and tank plants are operating at a rate close to normal, with enough business to carry them over balance of the year.

Mechanical stoker sales for September are reported by the Department of Commerce to the extent of 60,486 hp., compared with 71,693 hp. in August and with a maximum month in 1923 of 100,513 hp. in May. The September figure is below the average (73,578 hp.) of the preceding eight months.

British Iron and Steel Market

Japan Buying Heavy Tonnages of Sheets—Tin Plate in Strong Demand—Argentina to Place 100,000-Ton Rail Order

(By Cable)

LONDON, ENGLAND, Oct. 23.

Improved tone in pig iron is maintained, with some expansion in both home and export business. Scotland is a particularly active buyer of Cleveland grades and prices are higher. There is talk of increasing output. Hematite is firmer with stocks diminishing. East Coast mixed numbers are being "talked up." On the West Coast 13 furnaces now are blowing.

Steel business expansion is hampered by a continuance of the boilermakers' dispute, now in its twenty-sixth week of duration. A conference is sitting today and hopes of settlement are entertained. Meanwhile new shipbuilding is almost stagnant.

There is some demand for plates and angles from the Continent. Makers are keen for orders and are giving 10 days delivery. Argentina is reporting considering ordering 100,000 tons of rails, probably on the Continent.

Continental position is disorganized by the political upset and exchange chaos. The works want orders, but only the Belgian are quoting in sterling. The other makers have withdrawn.

In Belgium franc prices are easier. Demand has fallen off considerably, owing to the fall in sterling.

In Luxembourg, Hadir has relighted the eighth furnace at Differdange. The Acieries Reunies de Burbach-Eich-Dudelange has banked one furnace at Dudelange.

In France, the Société Metallurgique des Terres Rouges has blown in one furnace at Audun-le-Tiche (Moselle). Thirty-one furnaces now are operating in Moselle.

In Germany (the Ruhr), mines and works are operating on a restricted scale. The Thyssen plants at Hamborn are shut down and 14,000 men have been discharged. Krupp's are contemplating dismissals. The Phoenix Aktien-Gesellschaft at Hoerde is employing only a portion of the labor forces.

Tin plate is firm, on large sales at home and for export. Inquiries are spreading over March. Some works are sold out to the end of the year. Others are giving early shipment, owing to suspension of Ger-

man orders on account of financial difficulties. In general, Continental demand is quieter. South America is very active.

Galvanized sheets are firm, but sales are only moderate, except to the Far East, which is buying freely.

Black sheets are strong all around. Japanese 6 x 3, 13's, 107 lb., have sold up to £21 10s. (4.30c. per lb.) f.o.b.

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.48 per £1, as follows:

Durham coke, delivered	£1 18s.	to £1 19s.	\$8.51 to \$8.74
Bilbao Rubio ore†	1 4		5.38
Cleveland No. 1 foundry	5 2½		22.96
Cleveland No. 3 foundry	5 0		22.40
Cleveland No. 4 foundry	4 11		20.38
Cleveland No. 4 forge	4 15		21.28
Cleveland basic	4 10	to 4 14	20.16 to 21.06
East Coast mixed	4 18½	to 5 0	22.06 to 22.40
East Coast hematite	4 19	to 5 0	22.17 to 22.40
Perromanganese*	17 10		78.40
Rails, 60 lb. and up	8 0	to 9 0	35.84 to 40.32
Billets	7 10	to 8 5	33.60 to 36.96
Sheet and tin plate bars,			
Welsh	9 2½		40.88
Tin plates, base box	1 3¼	to 1 3¼	5.18 to 5.21
			C. per Lb.
Ship plates	9 0	to 9 10	1.80 to 1.90
Boiler plates	12 10	to 13 0	2.50 to 2.60
Tees	9 10	to 10 0	1.90 to 2.00
Channels	8 15	to 9 5	1.75 to 1.85
Beams	8 10	to 9 0	1.70 to 1.80
Round bars, ¾ to 3 in.	10 5	to 10 15	2.05 to 2.15
Galvanized sheets, 24 g.	19 0	to 19 5	3.80 to 3.85
Black sheets, 24 gage	14 0		2.80
Black sheets, Japanese			
specifications	15 5		3.05
Steel hoops	12 0	& 12 10*	2.40 & 2.50*
Cold rolled steel strip,			
20 gage	17 5		3.45
Cotton ties, Indian speci-			
fications	15 0		3.00

*Export price. †Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports

			(Nominal)
Foundry pig iron:			
Belgium	£5 5s.	to £5 10s.	\$23.52 to \$24.64
France	5 5	to 5 10	23.52 to 24.64
Luxemburg	5 5	to 5 10	23.52 to 24.64
Billets (nominal):			
Belgium	7 0		31.36
France	7 0		31.36
Merchant bars:			C. per Lb.
Belgium	8 5		1.65
Luxemburg	8 5		1.65
France	8 5		1.65
Joists (beams):			
Belgium	8 2½		1.63
Luxemburg	8 2½		1.63
France	8 2½		1.63
Angles:			
Belgium	8 0	to 8 5	1.60 to 1.65
½-in. plates:			
Belgium	8 10		1.70
Germany	8 10		1.70
¾-in. plates:			
Luxemburg	7 15		1.55
Belgium	8 0		1.60

Hearing in Assigned Car Case

WASHINGTON, Oct. 23.—Representatives of the iron and steel industry are present this week at the hearing in the assigned car case which was reopened under order of the Interstate Commerce Commission. Only spokesmen for the railroads were called in the first two sessions, and considerable time was taken up with examination of witnesses for the New York Central Railroad. It is expected that the traffic men of the steel industry will testify late this week as indications are that the hearing will be extended for several days.

It was brought out that 41 per cent of the Erie Railroad requirements of 3,800,000 tons of coal came from company mines. F. W. Holt in charge of Erie purchases, stated that 54 per cent came from mines not on the railroad and the remainder was acquired under ordinary contracts. The railroad now has about 65 days' supply on hand.

M. S. Connors, general manager of the Hocking Valley, insisted that abolition of the assigned car would amount to confiscation.

W. C. Bower, assistant manager of purchases and stores, told the commission that without the assigned car railroads would be obliged to contract for 30 per cent more coal than they would use and the result would be increases in price.

Canadian Scrap Market

TORONTO, ONT., Oct. 23.—Melters throughout Ontario and Quebec are adhering to the hand-to-mouth buying policy and as a result trading in iron and steel scrap is slow. As a consequence of the limited demand for scrap, dealers are doing very little speculative buying and are adding to their yard holdings only when offered material below the regular quotations. Dealers in both Toronto and Montreal districts, however, are well supplied with most lines of old material. Canadian dealers are offering the following prices for iron and steel scrap:

	Dealers' Buying Prices	
	Toronto	Montreal
	Gross Tons	
Steel turnings	\$10.00	\$7.00
Machine shop turnings	10.00	7.00
Wrought pipe	8.00	8.00
Rails	12.00	12.50
No. 1 wrought scrap	14.00	14.00
Heavy melting steel	12.00	11.50
Steel axles	15.00	18.00
Axle wrought iron	18.00	20.00
	Net Tons	
Standard car wheels	15.00	16.00
Malleable scrap	15.00	16.00
Stove plate	15.00	16.00
No. 1 machinery cast	20.00	20.00

Iron and Steel Markets

A WAITING MARKET

Railroads Expected to Supply the Forward Impulse

Automobile and Building Activity and Japanese Buying—Pig Iron Lower

Some expansion in automobile manufacture, sustained structural steel activity and, for Japan, buying and definite inquiries, stand out in an otherwise featureless steel market. In pig iron the story is one of scattered sales at prices 50c. and \$1 below those of a week ago.

In bookings of finished steel the rate so far in October approaches 10 per cent better than for the same period in September. Mills devoted to one or two products have not done uniformly so well, orders with some plate makers not exceeding 30 per cent of capacity.

An improved scale of buying appears to wait on a flow of railroad equipment inquiries, which are expected to gather in volume in December. Meanwhile, necessity purchasing describes the present and immediate outlook. Taking 60 to 65 per cent of capacity, new orders and specifications on contracts are neither large enough to indicate that price cutting would bring an increase nor small enough to allow buyers to cease watchfulness for the upward turn.

The Pennsylvania Railroad's distribution of rail purchases is expected hourly at this writing, yet two roads in the West have asked for suspensions on old orders, one for 10,000 tons and the other for 60,000 tons, possibly for financial reasons. The Missouri-Kansas-Texas placed 18,750 tons with the Steel Corporation, 10,000 tons to be rolled by the Illinois company and the remainder in Alabama. Three roads have asked for 70,000 kegs of spikes, 30,000 kegs of bolts and 18,000 tons of tie plates.

Japan's purchases have included 1300 tons of light rails, 11,000 tons of black sheets, several thousand tons of pipe and 800 tons of structural material, and that country is actively inquiring for upward of 25,000 tons of sheets and a round tonnage of light and standard rails. England's sold up condition in sheets is requiring Japan's taking No. 28 and No. 38 gage in place of the lighter sheets desired.

A Cleveland mill sold 8000 tons of sheet bars on account of the Japanese orders and has reserved 40,000 tons for the first quarter, subject to prices prevailing at time of shipment.

Supplementing 6100 tons bought for October and November, Willys-Overland has closed for 1600 tons additional steel bars for early shipment. A Cleveland maker of automobile parts wants 1000 tons of molybdenum and 1000 tons of carbon spring steel. Detroit reports indicate automobile manufacturing close to capacity.

Among fabricated steel inquiries are some 6000 tons of bridge work, the largest in some time, and 10,000 tons for apartment houses in New York. Awards call for upward of 11,000 tons. September's bookings at 132,500 tons were substantially the average of the preceding three months.

The Canadian National Railways has placed two car ferries at Toledo, requiring 5200 tons of steel.

Strip steel continues weak, with quotations ranging from 2.85c. to 3c. and as low as 2.75c. for widths in competition with blue annealed sheets, light plates and skelp.

Price irregularities mark rerolled light rails, which are obtainable as low as 1.80c., and spikes, which have sold at 3.10c. A quotation of 3.70c. has appeared in black sheets.

Hope of pig iron sellers of being able to stop the downward trend of prices has rested on decrease of production and a number of merchant furnaces have either been blown out or will soon be put on the idle list. Whether this curtailment of operations will proceed rapidly enough to stop further price declines is not certain. Only five merchant stacks are now in blast in the Pittsburgh and Valley districts. Price recessions continue. At Pittsburgh, basic and foundry grades have been marked down \$1, while prices in nearly all other centers have been reduced from 50c. to \$1. Canadian iron is increasingly prominent. It is in active competition with United States furnaces in Michigan and has been sold not far distant from Chicago.

Large inquiries have encouraged cast iron pipe makers.

Prices of old material are very weak and reductions ranging from 50c. to \$3 have been made, particularly in the Pittsburgh and Philadelphia districts.

The recessions in pig iron, both Valley basic and at Philadelphia, have reduced THE IRON AGE composite price to \$22.96 from \$23.54 last week. This is the lowest figure since early May of 1922.

No change having occurred in THE IRON AGE finished steel composite price, it remains at the 2.775c. per lb. established three months ago. Last year at this time it was 2.467c. per lb.

Pittsburgh

Prices of Pig Iron and Scrap Reduced—Shipments of Steel Exceed Orders

PITTSBURGH, Oct. 23.—The outstanding feature of the iron and steel market in the Pittsburgh district is the softer tone that has developed during the past week in pig iron and scrap. All grades of pig iron, except Bessemer and low phosphorus, have declined in price. Aside from gray forge, which has dropped 50c. a ton, the decrease has been \$1 a ton.

Operations of steel works are unchanged from last week, but production and shipments exceeded new business. The most active lines are pipe, wire and tin plate, on which the mills are rather heavily committed. Moderate improvement has been made in cold-

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics
At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Oct. 23, 1923	Oct. 16, 1923	Sept. 25, 1923	Oct. 24, 1922
No. 2X, Philadelphia.....	\$23.76	\$24.26	\$25.76	\$32.14
No. 2, Valley furnace.....	23.00	24.00	24.50	31.00
No. 2, Southern, Cin'ti.....	24.05	24.05	25.05	31.05
No. 2, Birmingham, Ala.....	20.00	20.00	21.00	27.00
No. 2 foundry, Chicago.....	25.00	25.00	26.00	31.00
Basic, del'd, eastern Pa.....	24.50	24.50	25.00	29.50
Basic, Valley furnace.....	23.00	24.00	24.50	30.00
Valley Bessemer, del. P'gh.....	26.76	26.76	28.26	34.77
Malleable, Chicago.....	25.00	25.00	26.00	31.00
Malleable, Valley.....	22.50	23.50	24.50	32.00
Gray forge, Pittsburgh.....	24.76	25.26	25.76	32.27
L. S. charcoal, Chicago.....	30.04	30.04	32.15	36.15
Ferromanganese, furnace.....	110.00	110.00	110.00	100.00

Rails, Billets, Etc., Per Gross Ton:	Oct. 23, 1923	Oct. 16, 1923	Sept. 25, 1923	Oct. 24, 1922
O.-h. rails, heavy, at mill.....	\$43.00	\$43.00	\$43.00	\$43.00
Bess. billets, Pittsburgh.....	40.00	40.00	40.00	40.00
O.-h. billets, Pittsburgh.....	40.00	40.00	40.00	40.00
O.-h. sheet bars, P'gh.....	42.50	42.50	40.00	40.00
Forging billets, base, P'gh.....	47.50	47.50	47.50	45.00
O.-h. billets, Phila.....	45.17	45.17	47.67	45.17
Wire rods, Pittsburgh.....	51.00	51.00	51.00	45.00
Skelp, gr. steel, P'gh, lb.....	2.40	2.40	2.40	2.00
Light rails at mill.....	2.25	2.25	2.15	2.00

Finished Iron and Steel, Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia.....	2.67	2.67	2.67	2.325
Iron bars, Chicago.....	2.40	2.40	2.35	2.50
Steel bars, Pittsburgh.....	2.40	2.40	2.40	2.00
Steel bars, Chicago.....	2.50	2.50	2.50	2.10
Steel bars, New York.....	2.74	2.74	2.74	2.34
Tank plates, Pittsburgh.....	2.50	2.50	2.50	2.00
Tank plates, Chicago.....	2.60	2.60	2.60	2.30
Tank plates, New York.....	2.74	2.84	2.84	2.34
Beams, Pittsburgh.....	2.50	2.50	2.50	2.00
Beams, Chicago.....	2.60	2.60	2.60	2.20
Beams, New York.....	2.74	2.84	2.84	2.34
Steel hoops, Pittsburgh.....	3.15	3.15	3.15	2.90

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Oct. 23, 1923	Oct. 16, 1923	Sept. 25, 1923	Oct. 24, 1922
Sheets, black, No. 28, P'gh.....	3.75	3.75	3.75	3.50
Sheets, galv., No. 28, P'gh.....	5.00	5.00	5.00	4.50
Sheets, blue an'd, 9 & 10.....	3.00	3.00	3.00	2.60
Wire nails, Pittsburgh.....	3.00	3.00	3.00	2.70
Plain wire, Pittsburgh.....	2.75	2.75	2.75	2.45
Barbed wire, galv., P'gh.....	3.80	3.80	3.80	3.35
Tin plate, 100-lb. box, P'gh.....	\$5.50	\$5.50	\$5.50	\$4.75

Old Material, Per Gross Ton:

Carwheels, Chicago.....	\$17.50	\$17.50	\$19.50	\$25.50
Carwheels, Philadelphia.....	19.00	20.00	21.00	22.50
Heavy steel scrap, P'gh.....	15.00	16.00	17.50	21.00
Heavy steel scrap, Phila.....	15.00	15.00	16.50	17.50
Heavy steel scrap, Ch'go.....	13.75	14.00	16.00	18.50
No. 1 cast, Pittsburgh.....	18.50	19.50	21.00	24.00
No. 1 cast, Philadelphia.....	19.00	19.50	21.00	22.00
No. 1 cast, Ch'go (net ton).....	18.50	19.00	19.50	20.50
No. 1 RR. wrot. Phila.....	17.00	17.50	19.00	22.00
No. 1 RR. wrot. Ch'go (net).....	12.50	13.00	15.00	17.50

Coke, Connellsville, Per Net Ton at Oven:

Furnace coke, prompt.....	\$3.75	\$3.75	\$4.25	\$8.50
Foundry coke, prompt.....	4.75	4.75	5.00	10.50

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York.....	13.12½	13.12½	13.87½	14.12½
Electrolytic copper, refinery.....	12.50	12.62½	13.25	13.62½
Zinc, St. Louis.....	6.32½	6.30	6.42½	7.00
Zinc, New York.....	6.67½	6.65	6.77½	7.35
Lead, St. Louis.....	6.55	6.60	6.75	6.40
Lead, New York.....	6.85	6.85	7.10	6.65
Tin (Straits), New York.....	41.25	41.50	42.25	35.25
Antimony (Asiatic), N. Y.....	8.00	7.50	7.50	6.75

Composite Price Oct. 23, 1923, Finished Steel, 2.775c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	Oct. 16, 1923, 2.775c. Sept. 25, 1923, 2.775c. Oct. 24, 1922, 2.467c. 10-year pre-war average, 1.689c.
These products constitute 88 per cent of the United States output of finished steel	

Composite Price Oct. 23, 1923, Pig Iron, \$22.96 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	Oct. 16, 1923, \$23.54 Sept. 25, 1923, 24.38 Oct. 24, 1922, 30.02 10-year pre-war average, 15.72
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finished steel bars and strip steel as a result of new business placed by the automotive industry.

While the coke market is easier, prices remain unchanged. Producers, finding the market listless; continue to shut down ovens rather than take business at lower figures. Manufacturers of finished steel generally are of the belief that there will be no marked improvement in demand over the remainder of the year, but they are hoping for an upturn early in the new year.

Pig Iron.—While the market for pig iron continues to be extremely dull, some tonnages of steel making and foundry grades have been sold during the past week at lower prices. The only grades whose prices remain unchanged are Bessemer, which is quoted at \$25, Valley, and low phosphorus, quoted at \$30, although it is reported that a small lot of the latter has been sold at \$2 under the regular quoted price. Sales of No. 2 foundry, involving lots of 200 and 300 tons, have been made at \$23, Valley, and a small tonnage of standard basic also has been sold at \$23, Valley, a decline of \$1 for each grade. Some makers of basic continue to

quote \$24, Valley. No. 3 foundry and malleable, also dropping \$1, have become established at \$22.50, Valley, while the new price on gray forge is \$23, a decline of 50c. The pig iron market is dull, and the trade is disturbed while awaiting more nearly stabilized conditions. Consumers are cautious and the few who come into the market are buying on a restricted basis and some of them evidently are sounding out the situation in the hope that lower levels will develop. Some producers claim that they now actually are producing at a loss and are declining to offer the expected concessions. This is particularly manifest in the case of Bessemer iron, which still is quoted at \$25, Valley, but is in extremely light demand. The attitude of buyers indicates that they want to enter the new year with small inventories on hand as possible. Present stocks in the hands of consumers are low, while large tonnages of basic and fair-sized tonnages of foundry grades are stocked in furnace yards in the Pittsburgh and Valley districts. There are only five merchant furnaces producing iron in the Pittsburgh and Valley districts. It

is reported that the Struthers Furnace Co. may place its furnace at Struthers, Ohio, in operation within a short time. The furnace at present is banked.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic	\$23.00
Bessemer	25.00
Gray forge	23.00
No. 2 foundry	23.00
No. 3 foundry	22.50
Malleable	22.50
Low phosphorus, copper free	30.00

Ferroalloys.—Transactions in the ferroalloy market are limited to small tonnages, and prices remain unchanged for standard ferromanganese for early shipment, being quoted at \$110, Atlantic seaboard, at which a small amount of business also has been done for first quarter. The price of \$117.50, which has been quoted by British producers, is nominal, and is not figuring in the market. Spiegeleisen is dull, with the 19 to 21 per cent grade being quoted at \$42 to \$45 per ton, furnace. Consumers of both ferromanganese and spiegeleisen seem to still have fair supplies on hand, and activity in the early future is not expected. The market on ferrosilicon is also dull. Prices are given on page 1147.

Semi-Finished Steel.—Quotations on semi-finished steel remain unchanged, and while there are reports that it has softened, some producers announce slightly better specifications. Rolling billets, both 2-in. and under and 2-in. and over, continue to take the spread of \$40 to \$42.50, Pittsburgh, while forging billets of ordinary carbon steel are quoted at \$47.50. Demand for sheet bars by sheet producers is light, but both the Bessemer and open-hearth grades remain at \$42.50. Demand for slab and skelp shows no improvement, and prices of \$40 to \$42.50, Pittsburgh, for the former, and 2.40c., Pittsburgh, for the latter are largely nominal. Buyers of wire rods are receiving some moderate sized orders at \$51, base, and are able to provide early delivery. Operations of the Carnegie Steel Co. remain unchanged at about 90 per cent capacity, and independent operations are estimated at about 70 to 75 per cent of ingot capacity.

Plates.—Makers of plates in the Pittsburgh district are holding firmly to the base price of 2.50c., Pittsburgh, despite reports of a somewhat easier tone in the East. Deliveries on new business, which is comparatively small, generally are being made in about 30 days. Consumers are buying on a hand-to-mouth basis, and are said to have no accumulation of stocks, which is looked upon as a hopeful sign from the viewpoint of the mills. Prices are given on page 1146.

Wire Products.—Varying conditions are noted in the mill situation regarding wire products. While all producers report fair business, some of them observe a slight decline in new orders, and others improved activity. Some independent mills do not find the market for nails so active and are able to give quicker deliveries. Other mills are booking 60 days ahead on nails for shipments exceeding production. As a general thing, deliveries on nails are being made in from four to six weeks. Fair demand is being reported for manufacturing, galvanized, barbed and fencing wire. The improvement in fencing wire in the past week is rather marked, due partly to the fact that jobbers are anxious to increase stocks. Prices are given on page 1146.

Rails.—Coal mine operators are manifesting little interest in the market for light rails, but despite reports of shading, producers still are getting 2.25c., base, on the small orders that are being received for rails when rolled from new steel. There continues a spread of 1.85c. to 2c., base, on rerolled light rails.

We quote light rails rolled from new steel at 2.25c. base (25-lb. to 45-lb.); rerolled rails, 1.85c. to 2c. base (12-lb. to 45-lb.), f.o.b. mill; standard rails, \$43 per gross ton mill, for Bessemer and open-hearth sections.

Tubular Goods.—Some independent makers report improvement in orders for lapweld steel pipe, but the greatest demand, which is fairly heavy, is for standard pipe. Lapweld grades are being delivered promptly by one of the large producing interests. Others are making shipments in 60 days. Shipments on butt-weld steel pipe are more deferred, ranging as high as four

months by some makers. Demand for this grade calls for the various sizes, and comes from various sources. Slight improvement in the oil situation is described as the reason for better demand for lapweld sizes. Operations in steel pipe production continue at a high rate. The fact that stocks in the hands of jobbers are not large is an encouraging sign in the trade. Demand for boiler tubes is only moderate, and shipments against old orders are heavier than on new business. Prices are given on page 1046.

Sheets.—Slight improvement in the market for sheets has developed during the past week, partly by reason of the fact that the automotive industry has taken some fair-sized tonnages. Operations of the American Sheet & Tin Plate Co. are approximately 90 per cent of capacity. The greatest demand is for automobile sheets. Other new business is spread more or less evenly among black, galvanized and blue annealed sheets. Production of independent mills remains at about 70 per cent of capacity. Early shipments are being made.

Tin Plate.—Tin plate mills are engaged heavily and present specifications assure operations for the remainder of the year. The American Sheet & Tin Plate Co. is producing close to 90 per cent of capacity. The new price for tin plate for the first quarter of 1924 is expected to be announced in two or three weeks, with the general expectation that \$5.50 per base box, Pittsburgh, will be maintained.

Cold-Finished Steel Bars and Shafting.—Specifications for cold-finished steel bars showed a slight improvement in the past week, due largely to the increased buying in the automotive industry. The market generally is quiet, with the quotation of 3.25c., base, Pittsburgh, being continued. Operations average 65 per cent of capacity. Deliveries are being made in from six to eight weeks, although deliveries for some sizes are deferred for 60 days. The price of 3.65c., Pittsburgh, for ground shafting is considered nominal.

Iron and Steel Bars.—Light inquiry is being made for steel bars and small orders also have been placed during the past week, although the market as a whole is quiet. The price is unchanged at 2.40c., base, Pittsburgh, and mills in this district are not meeting shaded quotations said to be made in some other districts. The market for iron bars also is unchanged.

We quote soft steel bars, rolled from billets, at 2.40c. base; bars for cold-finishing of screw stock analysis, \$3 per ton over base; reinforcing bars, rolled from billets, 2.40c. base; refined iron bars, 3.25c. base, in carload lots or more, f.o.b. Pittsburgh.

Hot-Rolled Flats.—No improvement is noted in the market for hot-rolled flats, but producers report that prices are holding well at 3.15c., base. It is the position of the makers who are quoting this figure that a reduced level does not bring out new business, and might have an opposite effect. Operations range from 65 to 70 per cent, and deliveries are being made in approximately two weeks.

Cold-Rolled Strips.—Automotive producers have placed fair-sized orders during the past week for cold-rolled strip steel. Generally, the conditions of mills remain unchanged, with operations at 65 per cent of capacity and the price 5c., base, Pittsburgh.

Structural Steel.—New business in the structural market is extremely small, and orders placed involve tonnages for light jobs. The dullness is partly seasonal in character, but is also due to the hesitancy to begin new construction owing to high costs of labor. Fabricating plants are supplied with a fair sized backlog, and consequently are able to operate at a fair capacity. Prompt delivery is being made on structural materials by the mills. The price of 2.50c., base, Pittsburgh, continues to be quoted on shapes. Prices are given on page 1146.

Bolts, Nuts and Rivets.—The market for bolts, nuts and rivets is quiet and producers are making prompt delivery on the business that is being placed. Prices remain unchanged. Prices are given on page 1146.

Track Supplies.—The railroads are buying fair sized tonnages of structural spikes, and deliveries are being

made in from two weeks to 60 days. Mills are well filled with orders. Slight improvement also has been made in the demand for small spikes. Fair demand exists for tie plates, on which some producers are making deliveries in 30 days.

Coke and Coal.—The market for furnace and foundry coke remains unchanged, with the former quoted at \$3.75 to \$4 and the latter at \$4.75 per net ton, Connellsville ovens. It appears to be pegged at these figures. Producers are declining to accept lower figures on the ground that to do so would wipe out small margins of profits where they now exist, and consequently mean a loss. That they appear to be firm in their attitude is shown by the fact that additional ovens are being shut down. The curtailed production, however, leaves an ample supply of tonnages in the market because of the extremely light demand. The closer approach of production to consumption is believed by operators to give a stronger support to the market than would be the case otherwise. The market for coal also continues to be dull, and the coking grade still ranges at \$1.85 to \$2.25, while the spread on gas coal now is given as \$2 to \$2.35.

Old Material.—The market for old material has declined from 50c. to \$3 per ton this week, all grades except rails for rerolling and No. 1 railroad wrought being affected. Mills and foundries are apathetic, and virtually no inquiry exists. Consumers are operating on stocks on hand, and apparently are guarding themselves against unnecessary accumulations. Mills consuming old rails are restocking and are taking fair-sized tonnages at \$17.50 to \$18, dealers' yards. No. 1 railroad wrought also continues unchanged at \$13 to \$13.50. Scrap dealers, when taking tonnages, are doing so at lower prices. The Baltimore & Ohio Railroad is asking for bids for 27,450 tons of scrap, the largest single item involving 3500 tons of old rails. Bids will be closed on Oct. 29 at Baltimore.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton

Heavy melting steel.....	\$15.00 to \$15.50
No. 1 cast, cupola size.....	18.50 to 19.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.	17.50 to 18.00
Compressed sheet steel.....	14.00 to 14.50
Bundled sheets, sides and ends..	12.50 to 13.00
Railroad knuckles and couplers..	18.00 to 18.50
Railroad coil and leaf springs...	18.00 to 18.50
Low phosphorus bloom and billet ends	20.50 to 21.00
Low phosphorus plate and other material	19.50 to 20.00
Railroad malleable	18.00 to 18.50
Steel car axles	18.50 to 19.00
Cast iron wheels.....	17.50 to 18.00
Rolled steel wheels.....	18.00 to 18.50
Machine shop turnings.....	10.50 to 11.00
Sheet bar crops	16.50 to 17.00
Heavy steel axle turnings.....	13.50 to 14.00
Short shoveling turnings.....	12.00 to 12.50
Heavy breakable cast.....	14.00 to 14.50
Stove plate	13.50 to 14.00
Cast iron borings	12.00 to 12.50
No. 1 railroad wrought.....	13.00 to 13.50
No. 2 railroad wrought.....	15.00 to 15.50

Detroit Scrap Market

DETROIT, Oct. 23.—One of the largest producers in the district is offering approximately 4000 tons of short machine shop turnings, regular hydraulic compressed, flashings, borings and heavy melting steel for November delivery on a competitive basis. Sales in this district have been very light on the basis of prices quoted a week ago except borings at \$10 to \$10.50.

The following prices are quoted on a gross ton basis, f.o.b. cars producers' yards, excepting stove plate, automobile cast and No. 1 machinery cast, which are quoted on a net ton basis:

Heavy melting steel.....	\$12.00 to \$12.50
Shoveling steel	12.00 to 12.50
No. 1 machinery cast.....	17.00 to 17.50
Cast borings	10.00 to 10.50
Automobile cast scrap.....	24.00 to 25.00
Stove plate	16.00 to 17.00
Hydraulic compressed	10.50 to 11.25
Short turnings	10.00 to 11.00
Long turnings	9.00 to 9.50
Flashings	9.50 to 10.00

Buying Improves in Youngstown District

YOUNGSTOWN, Oct. 23.—Both in the number of orders and volume of tonnage involved, business in finished steel lines in the Mahoning Valley registers some improvement over the past ten days. Much of the current buying, though, is of the hand-to-mouth variety, and there is little forward commitment in any extensive way. The railroads are making their steel wants known, however, in a more generous way, and the district independent industry looks for considerable business from this source next year.

The two most active finished steel lines in this territory at present are standard merchant pipe and tin plate. Makers of the latter commodity are sold well ahead over the remainder of the year and are maintaining a satisfactory production rate. It is the pipe business which is sustaining Valley operations to no inconsiderable degree, as pipe capacity looms large in finished steel lines in the Mahoning Valley.

The principal independent maker of full-finished sheets in this territory indicates that new business is somewhat smaller than heretofore, and in consequence production, well sustained throughout the year, has been curtailed. No. 22 gage auto body stock is still quoted at 5.35c., with no deviations, it is reported. Considerable interest in being manifested in the probable 1924 requirements of the automobile industry.

Strip steel buying is also well sustained in this district, the Ford Motor Co. absorbing large tonnages. On the ordinary gages, 3c. base is the accepted price. Pressed steel interests at Warren and Youngstown, closely allied with steel-producing groups, are taking sizable tonnages of strip in both the narrow and wide sizes.

In the semi-finished market, non-integrated sheet rollers are endeavoring to beat down the \$42.50 fourth quarter price on sheet bars, maintaining that competitors are able to purchase their raw steel requirements at Pittsburgh and Cleveland for less. One such sheet interest maintains reports are appearing with frequent persistency to the effect that sheet bars are moving in competitive districts at \$40. This differential, they maintain, places them at an unfair disadvantage with non-integrated competitors.

The black sheet market is still weak and spotty, with prices ranging from 3.75c. to 3.85c. Business awarded by Japanese interests, in which Valley mills participated, has played no unimportant part in helping to maintain existing schedules. Valley sheet mills this week are operating at an average of 61 per cent.

Davis Machine Tool Co. Sold

Property of the Davis Machine Tool Co., Rochester, N. Y., appraised at \$995,000, was sold on Oct. 22 for \$259,000 to James E. McKelvey, president American Woodworking Machine Co., acting for the Union Trust Co., of which he is a director. Financial difficulties beset the Davis company two years ago, and Morton H. Anderson was appointed receiver to operate the plant. During the war the company enjoyed great prosperity. The property included four buildings and 50,000 sq. ft. of land. Buildings were valued at \$165,920 and the land \$130,000. Machinery and equipment were valued at \$295,532.

Franklin D. Roosevelt, New York, president of the American Construction Council, last week advised curtailment of building activities for 1924, in order to avert another crisis next spring. Unless emergency steps to this end are taken now, he declared, the industry will suffer again from shortage of labor and materials and from the resultant delays in building projects. It was further recommended that smaller contracts be started in the fall and that repair work or alterations be done in winter, thereby affording steady occupation to workmen and enabling contractors to estimate completed dates with greater accuracy. A too ambitious program, Mr. Roosevelt warned, would defeat itself.

Chicago

Mill Specifications Show Some Increase, But Buying Is Limited

CHICAGO, Oct. 23.—Specifications received by local mills thus far this month are somewhat heavier than during the same period in September, but buying is restricted largely to current necessities. Shipments from mill still exceed new bookings and producers have now reached the point where they are able to make early deliveries. In fact, so satisfactory are mill deliveries that purchases from warehouse stocks are declining proportionately.

The general market situation continues to be characterized by great uncertainty. Consumers persist in their policy of caution in the belief that mills will soon find the need for new business so pressing that they will be forced to reduce their prices. In fact, the turning point in the market is believed to be close at hand and although surface indications point to a decline, producers have not given up hope that the railroads will place large orders for equipment. Car builders are positive in their assurances that early orders are to be expected from the Southern Pacific, although that road has not yet actually issued inquiries. The buying program of the road covers fully 18,000 freight cars, representing the joint needs of the Southern Pacific, the Pacific Fruit Express and the Union Pacific. According to latest advices, separate inquiries will not be issued by the latter line. In the event that these orders are actually placed, the effect on the iron and steel industry will doubtless be far-reaching. More than 180,000 tons of rolled steel will be involved, besides large tonnages of steel and malleable castings.

Local mill and furnace operations are unchanged. The Illinois Steel Co.'s two banked blast furnaces and its steel plant at Joliet will resume operations next week, following the completion of mill repairs.

Pig Iron.—The market remains weak in all departments, with price levels poorly defined owing to the dearth of orders. On Northern grades \$25 base furnace appears to be the top of the market, and this price has been shaded in several instances, usually through the waiving of differentials for higher silicon content. The excess product of steel works furnaces as well as Buffalo and Canadian iron are still competing with the offerings from usual sources of merchant supply. The Canadian iron in the higher silicons has penetrated to points close to Chicago. A Wisconsin melter has closed for 1300 tons of malleable and foundry for delivery over the rest of the year. An Illinois melter has purchased 500 tons of foundry for similar shipment. Another Illinois user wants 300 tons of foundry for delivery over the remainder of 1923. Most orders and inquiries, however, are confined to carload lots for prompt shipment. The volume of small orders is somewhat heavier than heretofore, suggesting that melters are exhausting their yard stocks.

Quotations on Northern foundry high phosphorus malleable and basic irons are f.o.b. local furnace and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumer's yard or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago..	\$30.04 to \$30.15
Northern coke, No. 1, sil. 2.25 to 2.75	25.00
Northern coke, foundry, No. 2, sil. 1.75 to 2.25.....	25.00
Malleable, not over 2.25 sil.....	25.00
Basic	25.00
High phosphorus	25.00
Southern No. 2.....	26.01 to 27.01
Low phos., sil. 1 to 2 per cent, copper free	33.25 to 34.00
Silvery, sil. 8 per cent.....	39.29

Ferromanganese.—A fair amount of ferromanganese has been sold at \$110 seaboard, which appears to represent the bottom of the market. Two hundred tons of spiegeleisen has been placed at \$43.80 delivered while carload lots have brought 50 cents higher.

We quote 80 per cent ferromanganese, \$117.56, delivered; 50 per cent ferrosilicon, \$85 to \$87, delivered; spiegeleisen, 18 to 22 per cent, \$43.80 to \$44.30, delivered.

Plates.—Mills still look forward confidently to liberal car buying as a source of tonnage in plates, shapes and bars. Railroad car orders thus far, however, have consisted of small, scattered lots, recent bookings of Western shops involving a total of not more than 10,000 tons of steel. No large inquiries or orders for oil storage tanks are reported, and reduced oil production, particularly in the California fields, has made the necessity for additional storage capacity less pressing. Miscellaneous consumers of plates are restricting their purchases to necessities and mill bookings continue to fall short of shipments. Prices are unchanged.

The mill quotation is 2.60c., Chicago. Jobbers quote 3.30c. for plates out of stock.

Cast-Iron Pipe.—The appearance of large inquiries has strengthened the attitude of pipe makers. Denver will place 4000 tons of 6- to 48-in. on Oct. 25. A day later, Tulsa, Okla. will consider figures on 2500 tons. On Oct. 24, Chicago will take bids on 570 tons of 8-in. Spring Wells, Mich., has awarded 700 tons of the United States Cast Iron Pipe & Foundry Co. Port Huron, Mich., has placed 250 tons with James B. Clow & Sons.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$61.20; 6-in. and above, \$57.20; class A and gas pipe, \$5 extra.

Sheets.—No additional Japanese tonnage has been booked by local mills, but inquiries from domestic sources are somewhat more numerous, although not bulking large in tonnage. In the main, the market situation is unchanged, prices being steady except for occasional shading on black and galvanized by small producers. The strenuous effort of mills to maintain present price levels is apparently dictated by a desire to protect old orders still unshipped.

Mill quotations are 3.75c. to 3.85c. for No. 28 black, 3c. for No. 10 blue annealed and 5c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote, f.o.b. Chicago, 4.35c. for blue annealed, 5.20c. for black and 6.35c. for galvanized.

Bolts and Nuts.—The market is soft at the quotations published on page 1146 and on lag bolts as low as 65 and 10 and 5 off is being done. Rivets are especially weak, one order having been taken at \$2.70, Pittsburgh, for large structural sizes.

Jobbers quote structural rivets, 4c.; boiler rivets, 4.20c.; machine bolts up to $\frac{3}{4}$ x 4 in., 45 and 5 per cent off; larger sizes, 45 and 5 off; carriage bolts up to $\frac{3}{4}$ x 6 in., 40 and 5 off; larger sizes, 40 and 5 off; hot pressed nuts, squares and hexagons, tapped, \$2.50 off; blank nuts, \$2.50 off; coach or lag screws, gimlet points, square heads, 50 and 5 per cent off.

Rails and Track Supplies.—The chief feature of the market is heavy, inquiry for track fastenings coming largely from the Union Pacific, the Baltimore & Ohio and Chesapeake & Ohio. Fully 70,000 kegs of spikes, 30,000 kegs of bolts and 18,000 tons of tie plates are involved. Roads having terminals in Chicago, however, are taking little interest in new supplies and in some instances have held up shipments on old orders. One road in this district has suspended shipment on 10,000 tons of rails and another on 60,000. In fact, little new rail business is expected from Chicago roads unless the steel market takes such a sharp turn as to warrant reservations of rolling space to forestall extended deliveries. The Pennsylvania, on the other hand, will soon distribute orders for 200,000 tons. A local mill has booked an order of 1300 tons of light rails for Japan. Domestic demand for light rails shows little life and in some instances mills have shaded prices in an effort to interest prospective buyers. Coal mines in this section are not buying, and rerolling mills are taking most of the business which is developing in the South.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled steel, 2.25c. f.o.b. makers' mills.

Standard railroad spikes, 3.25c. mill; track bolts with square nuts, 4.25c. mill; iron tie plates, 2.75c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.90c. base, and track bolts, 4.90c. base.

Bars.—Specifications for soft steel bars are somewhat heavier than in September, but generally speaking, buying is still of a hand-to-mouth character. Jobbers are not contracting ahead and industrial users are limiting their purchases to current requirements. Ton-

nage booked by the mills is considerably lighter than shipments, and producers are now in a position to make almost any delivery desired. Bar iron remains quiet, but mills are holding tenaciously to a minimum price of 2.40c., Chicago. Demand for rail steel bars is also light with prices unchanged at 2.30c., mill.

Mill prices are: Mild steel bars, 2.50c., Chicago; common bar iron, 2.40c., Chicago; rail steel, 2.30c., Chicago mill.

Jobbers quote 3.20c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 4.55c. for rounds and 5.05c. for flats, squares and hexagons.

Jobbers quote hard and medium deformed steel bars at 2.75c. base; hoops, 4.55c.; bands, 3.95c.

Structural Material.—Mill bookings of plain material are light, but fabricators are encouraged by a revival in inquiry. The local office of one of the largest independent fabricators has figured on three times as much tonnage this month as in September. Bids are in on the Ford Motor Co. plant at St. Paul, requiring 10,000 tons, and on the Brotherhood of Locomotive Engineers bank building at Cleveland, involving 6500 tons. Local plain material prices are firm.

The mill quotation on plain material is 2.60c., Chicago. Jobbers quote 3.30c. for plain material out of warehouse.

Wire Products.—New business is in fair volume, but individual orders are small and it is evident that no one is willing to buy in sufficient quantities to pile up stocks. Prices are unchanged and are given on page 1146.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, \$3.90 per 100 lb.; extra for black annealed wire, 15c. per 100 lb.; common wire nails, \$3.80 per 100 lb.; cement coated nails, \$3.25 per keg.

Reinforcing Bars.—The market is inactive and both lettings and inquiries are few. The Ford Motor Co. has awarded 110 tons for a bridge at Dearborn, Mich., to the McRae Steel Co. The Concrete Engineering Co. will furnish 125 tons for a viaduct at Forty-first Street, Chicago, for the Illinois Central.

Old Material.—The market is quiet and weak, with prices still slipping downward. Consumer buying is light and trading among dealers is at a minimum. In fact, brokers hesitate to speculate on either the short or long end of the market. Although the very fact that prices are so low suggests that they are scraping bottom, sellers see no prospects of an early revival of demand and fear that continued lack of business may force still further price recessions. Railroad offerings include the Baltimore & Ohio, 20,000 tons, and the Monon, 700 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$19.50 to \$20.00
Cast iron car wheels	17.50 to 18.00
Relaying rails, 56 and 60 lb.	26.00 to 27.00
Relaying rails, 65 lb. and heavier	32.00 to 35.00
Rolled or forged steel car wheels	17.50 to 18.00
Rails for rolling	15.50 to 16.00
Steel rails, less than 3 ft.	16.50 to 17.00
Heavy melting steel	13.75 to 14.25
Frogs, switches and guards cut apart	13.75 to 14.25
Shoveling steel	13.50 to 14.00
Drop forge flashings	9.00 to 9.50
Hydraulic compressed sheets	11.00 to 11.50
Axle turnings	11.00 to 11.50
Steel angle bars	15.50 to 16.00

Per Net Ton	
Iron angle and splice bars	18.50 to 19.00
Iron arch bars and transoms	18.50 to 19.00
Iron car axles	24.00 to 24.50
Steel car axles	16.00 to 16.50
No. 1 busheling	10.50 to 11.00
No. 2 busheling	7.00 to 7.50
Cut forge	12.50 to 13.00
Pipes and flues	8.00 to 8.50
No. 1 railroad wrought	12.50 to 13.00
No. 2 railroad wrought	12.50 to 13.00
Steel knuckles and couplers	16.00 to 16.50
Coil springs	18.50 to 19.00
No. 1 machinery cast	18.50 to 19.00
No. 1 railroad cast	18.00 to 18.50
No. 1 agricultural cast	18.00 to 18.50
Low phos. punchings	14.50 to 15.00
Locomotive tires, smooth	15.00 to 15.50
Machine shop turnings	7.00 to 7.50
Cast borings	9.00 to 9.50
Short shoveling turnings	9.00 to 9.50
Stove plate	15.50 to 16.00
Grate bars	14.00 to 14.50
Brake shoes	15.50 to 16.00
Railroad malleable	17.00 to 17.50
Agricultural malleable	16.50 to 17.00

San Francisco

Principal Activity in Southern Part of State —Pig Iron Very Dull

SAN FRANCISCO, Oct. 16.—Business in iron and steel continues very quiet, and there seems to be little prospect for betterment. Although the trade is slow to admit the full measure of dullness in this part of the State, the fact remains that at present, as for the past three months, there is a greater volume of activity in Los Angeles and contiguous counties than in this city and adjacent territory. One prominent importer, in speaking of this difference, called attention to the remarkable amount of building in the southern part of the State, a considerable portion of which is for business purposes involving large quantities of structural steel. The record of permits in San Francisco for new buildings during September represented a valuation of something over \$3,200,000, while for the same month the total for Los Angeles was close to \$14,000,000.

There has been some inquiry for wire nails, galvanized wire and cast iron pipe for shipment to Japan, but it has not been very extensive thus far. How this Japanese trade will develop is still problematical, but there is a well-defined belief that much of the iron and steel for permanent construction will be ordered direct from Pittsburgh and Birmingham for shipment via the Panama canal. For materials needed at once for temporary buildings this city will doubtless get a goodly share, to accompany the lumber, large quantities of which are constantly going forward.

Pig Iron.—Importers say the market is very dull, with buyers showing little interest. This part of the State, that is, the San Francisco Bay region, opens the fourth quarter of the year with scarcely any new business in sight. Both foundries and mills are still operating, but not at full capacity. All seem to be fully supplied with materials and only small parcels are purchased. Importers say the quotable prices remain about the same as two weeks ago—that is, \$34 to \$35 per ton. These figures are very easy, however, but it is doubtful whether concession in price would produce any increase in buying orders. Advices from Los Angeles indicate a fair measure of business in progress there, but there are also some indications of slowing down in that district. In a general way, trade conditions there are steadily becoming about the same as in this section of the State, dullness becoming more emphasized as existing orders are completed and very little new business being booked.

Coke.—The local market for coke is almost at a standstill. While there have been some inquiries, there has not been much real business, and importers say they do not expect much improvement for the near future. Prices remain around \$20 to \$21 per ton, ex-ship, for foreign coke, and domestic is, of course, higher. Some foreign is reported as on the way, but it is inconsiderable in quantity.

Finished Iron and Steel.—While there is not much change in trade conditions, it is noteworthy that promises for immediate delivery are now more readily given than two or three months ago. The demand for steel bars continues active and the inquiry for flats, channels, angles, rounds and squares is steady, with prices on all of them well sustained at the same figures which have ruled for the past three weeks or more. Structural steel is a little less active than a month ago, but prices are held firmly at 3.85c. to jobbers and 3.35c. in carload lots. Sellers say that judging by the present outlook these prices are likely to continue for some time. Sales of wire products are of good volume and the steady prices of the last three months are firmly held.

Old Material.—While sellers quote the same figures as two weeks ago, there is a disposition to shade the prices to some buyers. Only strictly first-class material will bring the full \$15 per ton. Buyers are taking only small lots and they almost invariably seek concessions. Both mills and foundries are well supplied. The lower grades move very slowly and even shaded figures fail to arouse a buying interest. A cargo of about 1200 tons is being loaded at a Mexican port and will probably arrive here some time early in December.

New York

Inquiries for Structural Steel Exceed Expectations—Pig Iron Dull

NEW YORK, Oct. 23.—Sales of pig iron have been very light, the largest being 1000 tons to the A. P. Smith Mfg. Co., Bloomfield, N. J., for January to April delivery. It is understood that this was booked at about \$23, furnace, by a furnace not in eastern Pennsylvania. The American Locomotive Co. has purchased 250 tons, at not above \$22, Buffalo, and it is probable that \$22 was shaded. The Worthington Pump & Machinery Corporation is in the market for 400 tons for spot delivery and the American Car & Foundry Co. for two lots of from 250 to 350 tons. An upper State company is inquiring for 600 tons of No. 2X for first quarter. Nearly all of the buying is for early needs and in some cases melters are pressing for deliveries. It is clear that the limited demand is for real requirements and is in no sense speculative. Very little interest is shown in first quarter business. The Buffalo market is weak at \$22 for No. 2 plain, with a general belief that \$21 could be done on an attractive order. The Low Moor Iron Co. has blown out one of its Low Moor stacks and has blown in the Covington stack. The Low Moor stack is in need of repairing of lining. One Witherbee-Sherman stack at Port Henry has been blown out.

We quote delivered in the New York district as follows, having added to furnace price \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 1X fdy., sil. 2.75 to 3.25....	\$25.77
East. Pa. No. 2X fdy., sil. 2.25 to 2.75....	25.27
East. Pa. No. 2, sil. 1.75 to 2.25.....	25.27
Buffalo, sil. 1.75 to 2.25.....	26.91
No. 2X Virginia, sil. 2.25 to 2.75.....	29.94
No. 2 Virginia, sil. 1.75 to 2.25.....	29.44

Ferroalloys.—There is very little demand for ferromanganese and only carload lots are being inquired for. The price situation is unchanged and the actual level at which the small demand is being met is difficult to gauge. There does not seem to be much resale alloy available and the basis upon which one domestic producer is quoting makes it difficult to state the market price. British alloy is unchanged at \$117.50, seaboard, which is based upon an 80 per cent content of manganese. There has been no change in the spiegeleisen market either as to quotations or demand, but specifications on contract are fairly insistent. The 50 per cent ferrosilicon market is quiet with small lots sold at a range of \$82.50 to \$85, delivered.

Cast-Iron Pipe.—Quotations are unchanged as yet, but business is a little quieter. Municipal tenders are about at an end, but that some business may appear from Japan seems evident from a recent inquiry for 2000 tons of 10 to 24-in. water pipe received by American makers. The second opening of bids by the Department of Water Supply, Gas and Electricity, New York, on more than 3500 tons of 8-in. pipe with fittings resulted in the following bids on the pipe: Section 1, Donaldson Iron Co., \$68.90 per ton, and United States Cast Iron Pipe & Foundry Co., \$69.50 per ton; Section 2, United States Cast Iron Pipe & Foundry Co., \$69.50 and R. D. Wood & Co., \$69; Section 3, United States Cast Iron Pipe & Foundry Co., \$69.50. These prices are unchanged from the original bids, which were rejected as informal. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$63.60; 4-in. and 5-in., \$68.60; 3-in., \$78.60, with \$5 additional for Class A and gas pipe. The soil pipe market is quiet and prices weak. Makers, as a rule, are booked up to about Dec. 1. Sales at the 40% per cent for standard and 50% per cent discount for heavy pipe have become more numerous. We quote discounts of both Southern and Northern makers, f.o.b. New York, in carload lots, as follows: 6-in., 35% to 40% per cent off list; heavy, 45% to 50% per cent off list.

Warehouse Business.—The market continues moderately active and prices, with the exception of sheet quotations, fairly firm, although there is an increasing tendency to make longer deliveries free, in some cases

no charge being made for motor truck delivery up to 30 and 35 miles from the warehouse. In the past week the market on black and galvanized sheets, which had been apparently gaining somewhat in strength, developed renewed weakness with shading down to 4.50c. per lb. base on black and 5.50c. per lb. on galvanized. As a result one large warehouse in this district began quoting these prices generally on sheet business of any size above a few bundles. Business in wrought iron and steel pipe is extremely quiet, but prices are holding fairly firm on steel with slight shading on wrought iron. We quote prices on page 1162.

Coke.—As a result of recent efforts at curtailment of production, the coke market is beginning to show a slightly firmer tendency. Sellers are no longer inclined to consider much less than \$5.25 per ton on standard foundry, up to \$6.50 on some brands, and the market on standard furnace is from \$4 to \$4.25, although a few "distress" tonnages are noted at as low as \$3.50 per ton, about the price of medium sulphur, which ranges from \$3.40 to \$3.60 per ton. By-product is quoted at \$11.41, Newark and Jersey City, N. J.

Old Material.—The downward movement in all grades of scrap continues unchecked. Coatesville, Pottsville and Conshohocken shipments of heavy melting steel all bring \$15 per ton delivered, with \$16 paid for delivery to Johnstown, Pa., which has a higher freight rate. In some instances, brokers are offering only \$14.50 and \$14.75 per ton delivered eastern Pennsylvania, but little or no tonnage has been obtained at these prices. Some borings and turnings are going forward to Johnstown at \$13 per ton delivered and to Coatesville at \$11 and in some cases \$11.50 per ton delivered. Stove plate to New Jersey foundries is quoted at \$16 per ton delivered and to Harrisburg consumers \$16.25 per ton.

Buying prices per gross ton New York follow:

Heavy melting steel, yard.....	\$10.75 to \$11.25
Steel rails, short lengths, or equivalent.....	11.75 to 12.25
Rails for rolling.....	15.00 to 16.00
Relaying rails, nominal.....	25.00 to 26.00
Steel car axles.....	17.00 to 17.50
Iron car axles.....	23.00 to 24.00
No. 1 railroad wrought.....	14.00 to 14.50
Wrought iron track.....	13.50 to 14.00
Forge fire.....	9.50 to 10.00
No. 1 yard wrought, long.....	13.00 to 13.50
Cast borings (clean).....	8.50 to 9.00
Machine-shop turnings.....	7.50 to 8.00
Mixed borings and turnings.....	7.50 to 8.00
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	10.25 to 10.75
Stove plate.....	12.50 to 13.00
Locomotive grate bars.....	13.00 to 14.00
Malleable cast (railroad).....	17.00 to 18.00
Cast-iron car wheels.....	15.50 to 16.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$19.00 to \$19.50
No. 1 heavy cast (columns, building materials, etc.), cupola size.....	18.00 to 18.50
No. 1 heavy cast, not cupola size.....	15.00 to 15.50
No. 2 cast (radiators, cast boilers, etc.).....	16.00 to 16.50

Finished Iron and Steel.—Apart from structural steel there is no activity in the local steel market worth noting. In structural steel there is more work in prospect than is usual at this time of year. Among the new projects is one of 14,000 tons, a power plant at Kearny, N. J., for the Public Service Corporation of New Jersey. A local fabricator says that he has projects up for figures in his estimating department totaling 50,000 tons. These include, in addition to the 14,000-ton job mentioned, about 12 apartment buildings, totaling 10,000 tons or more, and a number of loft buildings of somewhere near the same tonnage. None of the important car inquiries which car builders are expecting has come out, but there are reports that the Southern Pacific's inquiries will ask for bids on 18,000 cars. The total of all cars bought this year is about 64,000, and 20,000 cars have been let out for repairs. There has been scarcely any car buying of importance since May. Manufacturing consumers of steel products and jobbers are still buying very sparingly, but some of the mills report a greater number of inquiries, though the tonnages are small, usually not over a carload, and immediate rolling is generally specified. There are no indications of an early change in this hand-to-mouth policy of buying. The price situation is unchanged. Plates

are quoted at 2.50c., Pittsburgh, by the larger producers, and at 2.40c., Pittsburgh, by two or three smaller Eastern mills; structural steel is obtainable at 2.40c. to 2.50c., Pittsburgh, the larger mills adhering to the higher price; bars are firm at 2.40c. so far as the mills are concerned, but offerings from other sources, probably resale lots, contribute to a slight weakness in that market. Mill representatives say, however, that this competition does not affect sales to their regular trade at 2.40c.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.74c.; plates and structural shapes, 2.74c. to 2.84c.; bar iron, 2.74c.

St. Louis

Sales of Southern Pig Iron as Low as \$19—Scrap Prices Again Recede

St. Louis, Oct. 23.—The only sale of consequence made in the local market for several weeks was that by the St. Louis Coke & Iron Co. of 5000 tons of basic for delivery in the last quarter to a melter in the district. The sales for the week in car lot orders amounted to 500 tons. Melter continue their hand-to-mouth buying, despite lower prices, which seem only to cause them to further postpone placing orders for ordinary requirements. One melter in the district, for instance, requiring 150 tons of foundry iron weekly, has been buying only a week's supply at a time and never having more than a week's supply ahead. Other concerns have been buying no more than a month's supply at one time. It is difficult to say just what is the market. A stove foundry bought 500 tons of Southern iron at \$19, Birmingham, with the market nominally at \$21, and sales of Northern iron have been reported as low as \$24, with that market nominally at \$26. The St. Louis Coke & Iron Co. has reduced its price to \$25 to \$26, Granite City. A Tennessee melter is inquiring for 1500 to 2000 tons of malleable. Otherwise there are no inquiries before the market.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Birmingham (rail and water), \$5.17 from Birmingham, all rail, and 81 cents average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25.....	\$27.16
Northern malleable, sil. 1.75 to 2.25.....	27.16
Basic	27.16
Southern fdy., sil. 1.75 to 2.25 (rail).....	\$24.17 to 25.17

Finished Iron and Steel.—The order for 25,000 tons of 90-lb. rails for the Missouri Pacific has been allocated as follows: Colorado Fuel & Iron Co., 10,000 tons; Tennessee Coal & Iron Co., Illinois Steel Co. and Inland Steel Co., 5000 tons each. The 1924 requirements include these and 5000 tons additional on unfilled orders placed in 1923, most of the unfilled tonnage being placed with the Illinois Steel Co. Other railroad business is extremely light. The International & Great Northern bought 400 kegs of standard track spikes. While warehouse stocks are light, the intention is to keep them so for the remainder of the year, and the business from that source is extremely light. Manufacturers of steel products are buying no material that cannot be used in the finished product this year, with the same idea of keeping down inventories of raw products.

Coke.—A better demand is reported this week for foundry coke, and some contracts were made for last quarter and even a few for first quarter delivery. Neither ovens nor consumers want to go beyond 1923 in deliveries on the present basis. Sales of Connells-ville district coke were made at \$5.50 to \$7.50, ovens, the lower price being for spot delivery. Cooler weather is expected to start coke moving from the yards, but it has not affected buying by dealers.

Old Material.—The market for old material shows further weakness. The only buying by consumers is confined to carload lots, and quotations are merely nominal, each transaction being a matter of trading. The situation has been made worse by the curtailing of operations by consumers and the heavy offerings of old material by the railroads. Lists offered during

the week brought forth low prices, but the roads are eager to sell and in an endeavor to clean up their stocks before the first of the year continue to unload on an already overloaded market. New lists this week include: Baltimore & Ohio, 20,000 tons, and St. Louis & San Francisco, 2500 tons.

Per Gross Ton	
Iron rails	\$15.00 to \$15.50
Rails for rolling.....	13.50 to 14.00
Steel rails, less than 3 ft.....	15.50 to 16.00
Relaying rails, 60 lb. and under..	25.00 to 26.00
Relaying rails, 70 lb. and over...	32.50 to 33.50
Cast iron car wheels.....	17.00 to 17.50
Heavy melting steel.....	13.00 to 13.50
Heavy shoveling steel.....	12.50 to 13.00
Frogs, switches and guards cut apart	13.00 to 13.50
Per Net Ton	
Heavy axles and tire turnings...	11.00 to 11.50
Steel angle bars.....	13.00 to 13.50
Steel car axles.....	16.50 to 17.00
Iron car axles.....	24.00 to 24.50
Wrought iron bars and transoms	13.00 to 13.50
No. 1 railroad wrought.....	13.50 to 14.00
No. 2 railroad wrought.....	12.50 to 13.00
Railroad springs.....	14.00 to 14.50
Cast iron borings.....	9.00 to 9.50
No. 1 busheling.....	12.25 to 12.75
No. 1 railroad cast.....	18.00 to 18.50
No. 1 machinery cast.....	18.50 to 19.00
Railroad malleable.....	14.50 to 15.00
Machine shop turnings.....	9.00 to 9.50
Champion bundled sheets.....	7.00 to 7.50

Boston

Pennsylvania Furnaces Forced Out of Pig Iron Market by Keen Competition

Boston, Oct. 23.—Competition among Buffalo district furnaces for business in this territory has brought out still lower prices on Northern iron and forced those Pennsylvania furnaces with a Buffalo freight rate into New England out of the market. No. 2X Buffalo iron, some of it running high in manganese, sold the past week at \$22, furnace, or \$26.91 delivered, and occasionally at \$22.50, furnace, or \$27.41 delivered. No. 2 eastern Pennsylvania sold at \$23 and \$23.50, furnace, or \$26.65 and \$27.15 delivered. Furnaces in that district, however, are less inclined to shade prices. Most of them hold at \$24, furnace, on small and \$23.50 on large tonnages, and intimate a curtailment in production next month. Warrick will put out one furnace this week. Recent sales include small tonnages of Virginia and Alabama for mixture purposes at full prices; 700 tons No. 2X Buffalo to a Providence, R. I., tool maker; and 100 tons No. 2X, 100 tons silicon 3.25 to 3.75 and 100 tons malleable, Northern iron to the Sullivan Machinery Co., Claremont, N. H. The Universal Winding Co., Providence, is expected to close this week on 400 tons No. 2X and 500 tons No. 1X, and another machinery maker on 1000 tons No. 2X and No. 1X, last quarter iron.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama.

East. Penn., sil. 2.25 to 2.75.....	\$26.65 to \$28.15
East. Penn., sil. 1.75 to 2.25.....	26.65 to 27.65
Buffalo, sil. 2.25 to 2.75.....	26.91 to 27.91
Buffalo, sil. 1.75 to 2.25.....	26.91 to 27.41
Virginia, sil. 2.25 to 2.75.....	30.42 to 31.42
Virginia, sil. 1.75 to 2.25.....	29.92 to 30.42
Alabama, sil. 2.25 to 2.75.....	*30.60 to 31.10
Alabama, sil. 1.75 to 2.25.....	*29.60 to 30.60

*Nominal.

Coke.—New England producers of by-product foundry coke have increased shipments against contract specifications and are nearer caught up with orders than they have been before in months. No definite date is set for the opening of books for first half 1924 fuel contracts, but will be shortly. Both the New England Coal & Coke Co., Boston, and the Providence Gas Co., Providence, R. I., quote foundry coke at \$13.50, delivered in New England. Good Connells-ville foundry coke is offered at \$10.55, delivered, and higher, with few takers.

Old Material.—Sizable shrinkages in old material values took place the past week. Lower prices quoted in markets outside New England, a continued disinterest on the part of consumers, and a greater desire among owners of scrap to reduce stocks are held largely

accountable for the weakness. The drop in prices has a tendency to make purchasers even more cautious. Borings and turnings are in liberal supply and difficult to move, with the market off \$1 to \$2 a ton. Shafting values show greater softness than those on any other grade of scrap, not because of any marked expansion in offerings, but because of the almost lack of demand. For the same reason railroad malleable also is much cheaper. Apparently no market for No. 1 yard wrought exists. Dealers will not commit themselves on quotations. While far from active, enough machinery cast is moving to New England foundries to sustain prices.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$22.00 to \$23.00
No. 2 machinery cast.....	20.00 to 21.00
Stove plate	16.00 to 16.50
Railroad malleable	20.00 to 21.00
Street car wheels	20.00 to 21.00

The following prices are offered per gross ton lots f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.....	\$10.00 to \$10.50
No. 1 railroad wrought.....	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long)	10.50 to 11.00
Machine shop turnings	6.50 to 7.00
Cast iron borings, rolling mill..	6.50 to 7.00
Cast iron borings, chemical....	9.50 to 10.00
Blast furnace borings and turnings	6.00 to 6.50
Forged scrap and bundled skeleton	6.50 to 7.00
Shafting	15.00 to 15.50
Street car axles	18.00 to 18.50
Rails for rerolling.....	12.00 to 12.50

Buffalo

Flurry in Pig Iron Subsides—Price Cutting on Galvanized Sheets

BUFFALO, Oct. 23.—The slight flurry in buying with the coincident price cutting appears to have abated and there is a general absence of the kind of activity that marked this district earlier in the month. Several Buffalo producers have adopted a hands-off policy and refused to join in competition for some of the New England business that developed a base price of \$22, silicon 1.75 to 2.25, and differentials are to a large extent ignored. Total sales approximate 7000 tons. Inquiry for first quarter of 1924 has appeared in greater measure and while none of these inquirers are interested in large tonnages, the number of inquiries of this character shows consumers are feeling out Buffalo producers. Local furnaces are making no effort to consider any of this business on account of the weak, unsettled situation. Such inquiries as are now engaging attention are for small lots, the largest being one of 1000 tons for shipment to New Jersey, but this is not expected to be placed here.

We quote f.o.b., gross ton, Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil....	\$23.00 to \$23.50
No. 2 foundry, 2.25 to 2.75 sil....	22.50 to 23.00
No. 2 plain, 1.75 to 2.25 sil.....	22.00 to 23.00
Basic	23.00
Malleable	23.00
Lake Superior charcoal.....	30.25

Finished Iron and Steel.—Weakness in sheets, which has hitherto been confined to black grades, has now spread to galvanized and price concessions have been made on a few attractive tonnages. For several months the price of 5c. held on galvanized, but 4.90c. has been done here. Further weakness in black sheets is revealed in the price of 3.70c. that has been made in competition. Semi-finished demand is quiet and while inquiry is encouraging, the amount of new business shows a lessened interest on the part of consumers. Bar prices hold at 2.40c. Sellers are not inclined to believe that any notable buying movement will develop this year. Efforts to minimize inventories are already being felt. Pipe demand retains its high average and nails are being sought in great volume. A number of regular buyers are seeking prices on first quarter tin plate, and a big demand is indicated but new prices are not yet available.

Warehouse Business.—Demand for structural material and plates is especially brisk and the general

call for warehouse products is on a high level. October tonnages are far greater than was expected.

We quote warehouse prices Buffalo as follows:

Structural shapes, 3.65c.; plates, 3.65c.; soft steel bars, 3.55c.; hoops, 4.65c.; bands, 4.35c.; blue annealed sheets, No. 10 gage, 4.45c.; galvanized steel sheets, No. 28 gage, 6.35c.; black sheets, No. 28 gage, 5.25c.; cold rolled round shafting, 4.70c.

Old Material.—Only through the fact that a number of dealers have old orders to complete this market would be without any sign of life. Steel rejections are heavier through the fact that mills are applying rigid inspection. There is absolutely no new buying and a general absence of interest.

We quote f.o.b., gross ton, Buffalo as follows:

Heavy melting steel.....	\$16.00 to \$16.50
Low phos., 0.04 and under.....	21.00 to 22.00
No. 1 railroad wrought.....	14.00 to 15.00
Car wheels	16.50 to 17.00
Machine shop turnings.....	8.50 to 9.50
Cast iron borings.....	13.00 to 13.50
No. 1 busheling.....	14.50 to 15.00
Stove plate	17.00 to 17.50
Grate bars	16.00 to 16.50
Bundled sheet stampings.....	8.00 to 9.00
No. 1 machinery cast.....	19.50 to 20.50
Hydraulic compressed	14.50 to 15.50
Railroad malleable	18.50 to 19.00

Birmingham

Mild Improvement in Pig Iron with Prices at Low Levels

BIRMINGHAM, ALA., Oct. 22.—The Southern pig iron market shows slight improvement, the sales being a little more numerous, and the aggregate somewhat increased. The quotations are on the low level of \$21 per ton, No. 2 foundry, for local delivery, though reports are still current that Middle West melters of Southern iron have been able to place tonnage at \$20 and less. The two smaller furnace interests which have been maintaining \$24 per ton for iron in the home territory assert that they have seen no reasons for changing their quotations, though some melters but a short distance from Birmingham have been quoted at \$23. Twenty-one furnaces have been making iron steadily in this district and the indications now point to the weekly addition to the surplus iron being at an end. Hope is expressed that there will be only a slight increase in the surplus tonnage figures on the turn of the month. Some inquiries have been received also by Southern furnace interests for 1924 delivery, first quarter, but as far as can be ascertained, no business has been booked. The furnace companies are undecided as to what the prices will be for the coming year. The local melt of pig iron shows no improvement.

We quote per gross ton f.o.b. Birmingham district furnace as follows:

Foundry, silicon 1.75 to 2.25....	\$20.00 to \$21.00
Basic	20.00 to 21.00
Charcoal, warm blast.....	33.00

Cast-Iron Pipe.—Several lettings are received every week by the cast-iron pipe makers in this territory, and the product of these plants is going in all directions. All plants are operating at capacity production and will continue this way for an indefinite period, despite the fact that some foreign competition has been felt. Comments are still to be heard on the loss of the 4000 tons order at Los Angeles, Cal., to a French manufacturer, the details of the loss being summed up here in tonnage on coal, coke, pig iron and labor, estimated at more than \$150,000 to this district alone. The demand lately for the smaller sized pipe has not been so active but specifications are fairly regular on the larger product. The \$49 to \$50 quoted on the 6-in. and over pipe, Birmingham, is freely shaded.

Coke.—The coke market is in the same condition as the pig iron, small lot orders now being numerous and the aggregate hardly up to the production. The quotations are weak, the foundry coke highest price being \$7.50 and furnace coke down to near \$6. No curtailment in production has taken place, but serious consideration is being given in this direction. Beehive coke making is still heavy, though the greater portion of the coke being produced in this section is by-product, and

but little, if any, reduction in production is likely with these plants.

Old Material.—Very little business is being done in the scrap iron and steel market in the South, though some fair tonnages are moving. Old contracts have held on longer than usual for the reason that when the market began weakening, consumers ordered deliveries on old contracts to stop and in the meantime new business was placed at lower prices. Old contracts were not cancelled, but by degrees the tonnage is being received.

We quote per gross ton f.o.b. Birmingham district yards, nominal prices, as follows:

Cast iron borings, chemical.....	\$18.00 to \$19.00
Heavy melting steel.....	14.00 to 15.00
Railroad wrought.....	15.00 to 16.00
Steel axles.....	19.00 to 20.00
Iron axles.....	23.00 to 24.00
Old steel rails.....	16.00 to 17.00
No. 1 cast.....	19.00 to 20.00
Tram car wheels.....	18.00 to 19.00
Car wheels.....	17.00 to 18.00
Stove plate.....	16.00 to 17.00
Machine shop turnings.....	8.00 to 9.00
Cast iron borings.....	9.00 to 10.00

Cincinnati

Prices of Pig Iron Still Trend Downward— Scrap Is Lower

CINCINNATI, Oct. 23.—There is little change in the pig iron market as far as inquiries and sales are concerned, but prices are still inclined to go lower. In southern Ohio carload sales are being made on the basis of \$23.50, furnace, but \$23 has been quoted, and this price can still be done on round tonnages. One sale of 1000 tons of Southern iron was made to a melter in this district last week at around \$20.50, Birmingham, but today \$20 can be done, and this is generally considered to be the market. Buying generally continues of the hand-to-mouth variety, but occasionally inquiries are received for first quarter. A Tennessee melter is in the market for 1500 tons of malleable for first half, and a southern Ohio melter for 500 tons for first quarter. A northern Ohio melter is inquiring for 500 tons for November and December shipment. There is little activity in basic or Bessemer. An Ohio melter, which inquired for 700 tons of silvery, has decided to postpone purchase for the time being. No change is reported in the furnace situation.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base)....	\$24.05
Southern coke, sil. 2.25 to 2.75 (No. 2 soft) ..	24.55
Ohio silvery, 8 per cent.....	36.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2) ..	25.00
Basic Northern.....	25.00
Malleable.....	25.00

Finished Materials.—There is little change in the situation from the past week, most of the orders placed being for one and two carloads. The railroads have been buying track accessories in fair tonnages, the Louisville & Nashville Railroad having placed orders for 14,700 kegs of spikes, divided between a Pittsburgh independent and a Chicago mill, 5000 kegs of specially heat-treated track bolts, and 31,000 pairs of angle bars. Regular prices were quoted on all these inquiries. Plates and shapes are not very active, although the inquiries, small as they are, are slightly more numerous. Some interest is being shown in wire products, but orders are light. This branch of the trade is expected to show improvement, however. Bolts and nuts are in fair demand, though prices are weak.

Structural Material.—An inquiry from an Indiana fabricator for 3000 tons of shapes is current, but this is understood to be for an electric light plant at South Bend on which the company is figuring. There have been no important lettings, the only one reported being the Meredith Building, Huntington, W. Va., 300 tons, to a Pittsburgh fabricator.

Reinforcing Bars.—The general contract for St. Joseph's Infirmary, Louisville, Ky., has been awarded to the Struck Construction Co. The bars, 650 tons, have not been awarded. A number of small projects involving less than 100 tons each are up for bids. Prices of reinforcing bars show little change, the range being from 2.20c. to 2.40c.

Sheets.—One and two carload orders continue to be the rule, and most of these are being placed at the full price. Concessions are reported on black and galvanized, but not in the immediate Cincinnati territory.

Warehouse Business.—Orders are regarded as satisfactory, though the tonnages are small. Immediate delivery seems to be the desire of manufacturers. Prices are unchanged.

Cincinnati jobbers quote: Iron and steel bars, 3.50c.; reinforcing bars, 3.60c.; hoops, 4.55c.; bands, 4.25c.; shapes, 3.60c.; plates, 3.60c.; cold-rolled rounds, 4.50c.; cold-rolled flats, squares and hexagons, 5c.; No. 10 blue annealed sheets, 4.25c.; No. 28 black sheets, 5.35c.; No. 28 galvanized sheets, 6.35c.; No. 9 annealed wire, \$3.60 per 100 lb.; common wire nails, \$3.60 per keg base.

Coke.—There is little activity in foundry or furnace fuels, but a spurt in domestic coke was noted following several cold days. Prices are softer. New river foundry coke is available at \$11, which is down \$1, while Wise County furnace can be had for \$5.25 to \$5.75, and foundry at \$6 to \$7. The by-product price will be unchanged next month at \$9, Connellsville basis.

Old Material.—There is no activity in scrap in this district, mills being well covered for the rest of the year. Small sales of foundry grades are occasionally made. Prices are off at least 50c. on all grades. Railroad offerings are still heavy, and in view of the stipulation of some roads that shipping instructions accompany bids, prices offered by dealers are pretty low.

We quote dealers' buying prices, f.o.b. cars Cincinnati:

	Per Gross Ton
Bundled sheets.....	\$10.00 to \$10.50
Iron rails.....	13.00 to 13.50
Relaying rails, 50 lb. and up....	27.00 to 27.50
Rails for rolling.....	14.00 to 14.50
Heavy melting steel.....	12.50 to 13.00
Steel rails for melting.....	13.00 to 13.50
Car wheels.....	12.50 to 13.00

	Per Net Ton
No. 1 railroad wrought.....	11.00 to 11.50
Cast borings.....	7.50 to 8.00
Steel turnings.....	7.00 to 7.50
Railroad cast.....	14.00 to 14.50
No. 1 machinery cast.....	17.00 to 17.50
Burnt scrap.....	10.50 to 11.00
Iron axles.....	21.00 to 21.50
Locomotive tires (smooth inside) ..	12.50 to 13.00
Pipes and flues.....	6.50 to 8.00

Cleveland

Pig Iron Prices Still Receding with Slightly More Activity

CLEVELAND, Oct. 23.—Reflecting the further curtailment in blast furnace operations, the consumption of Lake Superior iron ore again fell off in September, being 4,813,942 gross tons as compared with 5,353,147 tons in August, a decline of 539,205 tons. This compares with a consumption of 2,989,545 tons in September last year. Interior furnaces in the central district consumed 2,459,880 tons, a falling off of 303,653 tons for the month; lake front and Canadian furnaces consumed 1,994,703 tons, a decrease of 166,464 tons, and Eastern furnaces consumed 228,722 tons, a decline of 59,716 tons. On Oct. 1 there were 37,449,846 tons of ore on hand at furnaces and Lake Erie docks as compared with 32,831,227 tons on Sept. 1 and with 41,805,430 tons on Oct. 1 last year. Stocks at furnaces Oct. 1 were 30,430,328 tons as compared with 26,923,953 tons on Sept. 1.

Pig Iron.—The market has become more active and under the test of several fair-sized inquiries has shown little resistance to the pressure on prices. As a result, prices are at least \$1 a ton lower than a week ago. Sales of foundry iron have been made on a basis of \$22.50 Valley by a Cleveland furnace and on some of these the furnace has had to absorb a freight differential which in one case amounted to 65c., making the price \$21.85 at furnace. In Buffalo a \$22 price has appeared and there are unconfirmed reports that even below \$22 has been quoted in the Valley district. In Cleveland foundry iron has declined \$1 a ton to \$24 at furnace for local delivery. Local producers at present are holding to this price, but this is not low enough to

shut out outside furnaces on a quotation below \$22.75 Valley. A Cleveland producer has sold 1000 tons of basic iron at \$23 for shipment in the Pittsburgh district from a western Pennsylvania furnace having about the same freight rate as the Valley, and basic iron can probably be bought at \$22.50, although there are unconfirmed rumors that this grade is being offered by a broker at a considerably lower price. An inquiry for 2500 tons of basic is pending. Sales of foundry iron include a 5000-ton lot taken by a local interest for November and December shipment from Cleveland and western Pennsylvania furnaces. The General Electric Co. during the week inquired for 2000 tons of malleable and foundry iron for its Erie works and this business has probably been placed with Buffalo furnaces. Considerable inquiry has developed during the past day or two in lots up to 600 tons, mostly for early shipment, but in some cases extending into the first quarter. In addition, several foundries are sounding the market on first quarter requirements and rather indefinite inquiries aggregating 10,000 tons are pending for that delivery. A northern Ohio consumer is still figuring on an inquiry for 1500 to 3000 tons for the first quarter and there is one inquiry for 500 tons for March shipment. In the Michigan territory, competition from Chicago furnaces for business in the western part of the State is keener than usual and a Canadian steel company is an active seller in some parts of the State.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace.....	\$22.50 to \$23.00
Northern No. 2 fdy., sil. 1.75 to 2.25	24.50
Southern fdy., sil. 1.75 to 2.25...	26.00
Malleable	24.50
Ohio silvery, 8 per cent.....	37.52
Standard low phos., Valley furnace	30.00

Semi-Finished Steel.—A local mill has sold several lots of sheet bars aggregating 8000 tons for making sheets to fill Japanese orders, and has made reservations of about 40,000 tons for the first quarter subject to prices prevailing at time of shipment. The falling off in the demand for sheets has caused the holding up of sheet bar shipment and some mills are in need of orders. Sheet bars are still generally quoted at \$42.50, but the ruling price on billets and slabs appears to be close to \$40.

Finished Iron and Steel.—Business shows some improvement in both orders and inquiries, but orders, as a rule, are confined to small lots for early requirements. Consumers are able to secure almost any desired delivery and with their lack of confidence that present prices will hold, they are allowing their stocks to run low and make replacements only when necessary. While local plate mills do not have a great deal of tonnage ahead, their orders are keeping up with shipments. On steel bars, plates and structural material, the market continues firm at regular prices. An order for two car ferries for the Canadian National Railway has been placed with the Toledo Shipbuilding Co. These will require 5200 tons of plates and structural material, which will be supplied by Steel Corporation mills. Indefinite inquiries are pending for lake boats requiring 8000 tons of steel. Considerable new business is coming from the automotive industry. The Willys-Overland Co. has placed 1600 tons of steel bars for early shipment, supplementing its recent purchases of 6100 tons for October and November delivery. A Cleveland manufacturer of automobile parts is inquiring for 1000 tons of molybdenum and 1000 tons of carbon spring steel. Detroit reports indicate that leading car builders continue to operate at near capacity and that smaller companies have not changed recent production schedules which were reduced several weeks ago. A Canton, Ohio, consumer has purchased 400 tons of bars and is inquiring for 500 tons additional for railroad specialty work. Bands are holding fairly well at 3c., but strip steel continues weak with quotations ranging from 2.85c. to 3c., and as low as 2.75c. for wide strip that comes in competition with blue annealed sheets, light plates and skelp. A price as low as 1.80c. is re-

ported on rerolled light rails, but mills are holding closely to 2.25c. for rails rolled from new steel. Spikes are still irregular and have sold as low as 3.10c. In structural lines fabricators are figuring on considerable work in other districts. Locally the Brotherhood of Locomotive Engineers' Building, requiring 5000 tons, has not yet been placed.

Jobbers quote steel bars, 3.36c.; plates and structural shapes, 3.46c.; No. 9 galvanized wire, 3.70c.; No. 9 annealed wire, 3.25c.; No. 28 black sheets, 4.40c. to 4.65c.; No. 28 galvanized sheets, 5.50c. to 5.80c.; No. 10 blue annealed sheets, 3.60c. to 4.06c.; cold rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 4.16c.; narrower than 1 in. or lighter than No. 20 gage, 4.60c.

Sheets.—Demand continues slow. Mills are getting a fair volume of orders for automobile body sheets, but car builders are buying only in small lots for early requirements. Black sheets continue weak and on these quotations of 3.70c. have appeared, although 3.75c. is the more common minimum price. There are unconfirmed reports that galvanized sheets have been offered at 4.90c., but blue annealed sheets are firm at 3c.

Reinforcing Bars.—The Bourne-Fuller Co. has taken 200 tons for a building for the Ben Williamson Co., Ashland, Ky., and 125 tons for the Dutch Creek Sewer, Cincinnati. An inquiry is pending for a warehouse for the Harnitt Jewett Co., Toledo, requiring 500 tons. The competition of mills making rail steel reinforcing bars is becoming keener and quotations as low as 2.10c. on these bars are reported, although 2.25c. is the commonly quoted price.

Cast-Iron Pipe.—The United States Cast Iron Pipe & Foundry Co. has taken 1200 tons of 4 to 12-in. pipe for work in Lake County, Ohio, a contract for which has been placed with the Lloyd Construction Co.

Coke.—The market is inactive with prices unchanged at \$5 to \$6.50 for standard Connellsville makes.

Alloy Steel.—Quotations have been reduced ¼c. per lb. on ½ and 3½ per cent nickel, chrome nickel and chrome vanadium alloy steels, following weakness in the market previously reported. We note the sale of 1200 tons of alloy steel for delivery to a Cleveland company making automobile parts.

Bolts, Nuts and Rivets.—New business is only moderate, as consumers are buying closely and only for immediate requirements. Some makers are still holding to the old prices or 60 and 5 per cent off list for machine bolts, although 60 and 10 per cent is more common. Rivet prices are unchanged at 2.75c. to 3c., the minimum price being usually for early shipment orders. Considerable business in fourth quarter contracts has been taken at 2.85c. to 3c.

Old Material.—Consumers are showing no interest in the market and are buying only small lots that dealers are particularly anxious to move. Owing to the light local demand recently, an outside market must be found for some of the Cleveland scrap, which means that it must carry the freight rate to the other consuming point. This has had a further weakening effect on the market and most grades have declined 50c. a ton, although compressed sheet steel has been marked down \$1 a ton. Dealers have been able to buy heavy melting steel as low as \$14.25. A leading local consumer has released shipments on heavy melting steel and compressed sheet scrap, but is not taking turnings.

We quote dealers' prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$14.75 to \$15.00
Rails for rolling.....	17.50 to 18.00
Rails under 3 ft.....	16.75 to 17.00
Low phosphorus melting.....	18.50 to 19.00
Cast borings.....	11.00 to 11.25
Machine shop turnings.....	10.75 to 11.00
Mixed borings and short turnings	10.75 to 11.00
Compressed sheet steel.....	12.75 to 13.00
Railroad wrought.....	12.75 to 13.00
Railroad malleable	18.50 to 19.00
Light bundled sheet stampings..	10.00 to 10.25
Steel axle turnings.....	12.00 to 12.25
No. 1 cast	20.00 to 20.50
No. 1 busheling	10.25 to 10.50
Drop forge flashings	11.00 to 11.50
Railroad grate bars.....	15.50 to 16.00
Stove plate	15.50 to 16.00
Pipes and flues	9.50 to 10.00

Philadelphia

Pig Iron and Scrap Markets Weaker and Steel Business Shows Little Gain

PHILADELPHIA, Oct. 23.—Whatever price changes have occurred in the pig iron, steel and scrap markets within the past week have been downward. The week has been uneventful, however, and the waiting policy of both buyer and seller is still strongly outstanding. Foundry pig iron prices have slid off a fraction of a dollar, quotations of 2.40c., Pittsburgh, on plates and shapes are slightly more numerous, while in the scrap market the bottom has fallen out entirely and prices are so ragged on some items that many dealers are finding it unprofitable to sell. The most significant development in the entire market was the purchase of a tonnage of pig iron by a New Jersey company for the first four months of 1924, the only buying thus far for delivery beyond Jan. 1.

Pig Iron.—Curtailed production of pig iron, which has been discussed by producers and their agents for weeks as the only way of restoring a balance between supply and demand, is now fairly on the way, but it may have come too late to be of much help to the pig iron market this year. A Warwick furnace will go out of blast this week, also one furnace at Port Henry, N. Y., and the Everett furnace in central Pennsylvania will be blown out about Nov. 1. There is talk of two or three other Eastern furnaces going out soon, but nothing has been decided definitely. In the immediate Philadelphia territory little foundry iron business has developed within the past week, but there has been a fair volume of inquiry and some sales in the New York territory. A manufacturer at East Orange, N. J., is the first to contract for foundry iron for 1924, having purchased 1000 tons or more, about half No. 2 plain and half No. 2X, for shipment in the first four months of next year at an average price of \$23.15, furnace. While eastern Pennsylvania furnaces are attempting to hold their prices at a minimum of \$23, furnace, this price has been applied in some instances not only on the base grade, No. 2 plain, but also on No. 2X, which recently has taken a differential of 50c. a ton over the base grade. In a few instances, \$23 has been shaded on No. 2 plain, but this has been done chiefly by furnaces which on certain business were at a disadvantage on freight rates. There have been no transactions in basic iron, but in line with recent reductions on foundry grades it is stated that basic could be purchased at \$24 to \$24.50, delivered. The regular users of basic in the East, principally plate mills, are well supplied for some time to come in view of the small volume of plate buying.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76 cents to \$1.63 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$23.76 to \$24.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	23.76 to 24.63
East. Pa. No. 1X,	24.26 to 25.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	29.17 to 30.17
Virginia No. 2X, 2.25 to 2.75 sil.	30.17 to 30.67
Basic delivered eastern Pa.	24.00 to 24.50
Gray forge	24.00 to 24.50
Malleable	24.00 to 25.00
Standard low phos. (f.o.b. furnace)	23.00 to 30.00
Copper bearing low phos. (f.o.b. furnace)	28.00

Ferroalloys.—Sales of ferromanganese have been made at \$108 to \$110, furnace, but whether these were resale lots does not appear. The leading domestic producer has no stated prices, and the British price is being nominally maintained at \$117.50, seaboard, with no sales.

Semi-Finished Steel.—Open-hearth rerolling billets are freely offered at \$40, Pittsburgh, and forging billets at \$45, Pittsburgh, with indications that the latter price might be shaded on desirable lots.

Plates.—A calculation by some of the Eastern producers indicates that new plate business does not exceed 30 per cent of the capacity of the mills of this district and operations at most of the mills are about on that basis. No improvement is in sight unless there should

be a revival of locomotive and car buying by the railroads. Two or three mills continue to name 2.40c., Pittsburgh, on carload lots or larger, and it is indicated that this price has been met in some instances by a larger mill, which thus far has steadfastly adhered to 2.50c. quotations. The Lebanon Boiler Works has been awarded a contract for fabricating 70 tanks for the Pennsylvania Sugar Co. The Newport News Shipbuilding & Dry Dock Co. will build two boats for the Old Dominion Line. We quote sheared and universal plates at 2.40c. to 2.50c., base, Pittsburgh.

Structural Material.—Buyers have been offered structural shapes in carload lots or larger at 2.35c., Pittsburgh, which is \$1 a ton under the minimum which two of the Eastern mills have recently been quoting. It appears that quotations of 2.40c., Pittsburgh, are more common, some of the larger mills not being able to disregard entirely the lower quotations of two small mills. It probably is still true, however, that the bulk of current tonnage is being booked at 2.50c.

Bars.—Though mill quotations remain at 2.40c., Pittsburgh, the situation continues to be disturbed somewhat by resale offerings. Mill representatives say that these transactions have not affected their ability to get 2.40c. from their regular customers, but the volume of business is light and showing little if any, improvement. Bar iron remains at 2.35c., Pittsburgh, but sales are almost negligible.

Warehouse Business.—A dwindling of sales of steel products out of stock is reported by leading jobbers. Prices remain unchanged, and for local delivery are as follows:

Soft steel bars and small shapes, 3.55c.; iron bars (except bands), 3.55c.; round edge iron, 3.75c.; round edge steel, iron finished, 1½ x ¼ in., 3.75c.; round edge steel planished, 4.55c.; tank steel plates, ¼ in. and heavier, 3.65c.; tank steel plates, ½ in., 3.95c.; blue annealed steel sheets, No. 10 gage, 4.25c.; black sheets, No. 28 gage, 5.15c.; galvanized sheets, No. 28 gage, 6.25c.; square twisted and deformed steel bars, 3.65c.; structural shapes, 3.65c.; diamond pattern plates, ¼-in., 5.40c.; ⅜-in., 5.60c.; spring steel, 5c.; round cold-rolled steel, 4.35c.; squares and hexagons, cold-rolled steel, 4.85c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.75c.; narrower than 1 in., all gages, 5.25c.; steel bands, No. 12 gage to ⅜-in., inclusive, 4.35c.; rails, 3.55c.; tool steel, 8.50c.; Norway iron, 7c.

Old Material.—The week's transactions in scrap, though limited as to numbers and tonnage, have brought about further declines on nearly all items ranging from 50c. to \$1 a ton. The highest price, and in fact the only price, obtainable for No. 1 heavy melting steel is \$15, delivered at eastern Pennsylvania plants on old orders, there having been no mill buying during the week. An Eastern consumer of bundled sheets and turnings for open-hearth use has reduced its price to \$10.50, delivered, on both items, and this appears to be the only market for these grades. A peculiar situation is that mixed borings and turnings for blast furnace use are slightly higher than turnings for steel plants, a reversal of the usual order. Prices have gone so low that some dealers are in no mood to sell, preferring to hold material in their yards when it is possible to do so.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$15.00
Scrap rails	15.00
Steel rails for rolling.....	\$17.00 to 17.50
No. 1 low phos., heavy 0.64 and under	20.00 to 21.00
Couplers and knuckles.....	19.50 to 20.00
Cast-iron car wheels.....	19.00 to 20.00
Rolled steel wheels.....	18.50 to 19.00
No. 1 railroad wrought.....	17.00 to 17.50
No. 1 yard wrought.....	15.50 to 16.00
No. 1 forge fire.....	11.00 to 11.50
Bundled sheets (for steel works)	10.50
Mixed borings and turnings (for blast furnace use).....	11.00 to 11.50
Machine shop turnings (for steel works use)	10.50 to 11.00
Machine shop turnings (for rolling mill use).....	11.50 to 12.00
Heavy axle turnings (or equivalent)	13.00 to 14.00
Cast borings (for steel works and rolling mills).....	12.00 to 12.50
Cast borings (for chemical plants)	15.00 to 16.00
No. 1 cast.....	19.00 to 20.00
Heavy breakable cast (for steel plants)	16.00 to 17.00
Railroad grate bars.....	16.00 to 16.50
Stove plate (for steel plant use)	16.00 to 16.50
Railroad malleable	17.00 to 17.50
Wrought iron and soft steel pipes and tubes (new specifications)	14.00 to 14.50
Shafting	20.00 to 21.00
Steel axles	20.00 to 21.00

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

Plates	
Sheared, tank quality, base, per lb.	2.50c.
Structural Materials	
Beams, channels, etc., base, per lb.	2.50c.
Sheet piling	2.65c.

Iron and Steel Bars	
Soft steel bars, base, per lb.	2.40c.
Soft steel bars for cold finishing	\$3 per ton over base
Reinforcing steel bars, base	2.40c.
Refined iron bars, base, per lb.	3.25c.
Double refined iron bars, base, per lb.	4.85c. to 5.00c.
Stay bolt iron bars, base, per lb.	8.00c. to 8.50c.

Hot-Rolled Flats	
Hoops, base, per lb.	3.15c.
Bands, base, per lb.	3c. to 3.15c.
Strips, base, per lb.	3c. to 3.15c.
Cotton ties, per bundle of 45 lb.	\$1.63

Cold-Finished Steels	
Bars and shafting, base, per lb.	3.25c.
Bars, S. A. E. Series, No. 2100	4.50c. to 4.75c.
Bars, S. A. E. Series, No. 2300	6.50c. to 6.75c.
Bars, S. A. E. Series, No. 3100	5.50c. to 5.75c.
Strips, base, per lb.	5.00c.

Wire Products	
Nails, base, per keg	\$3.00
Galvanized nails, 1 in. and over	\$2.25 over base
Galvanized nails, less than 1 in.	2.50 over base
Bright plain wire, base, No. 9 gage, per 100 lb.	\$2.75
Annealed fence wire, base, per 100 lb.	2.90
Spring wire, base, per 100 lb.	3.70
Galvanized wire, No. 9, base, per 100 lb.	3.35
Galvanized barbed, base, per 100 lb.	3.80
Galvanized staples, base, per keg	3.80
Painted barbed wire, base, per 100 lb.	3.45
Polished staples, base, per keg	3.45
Cement coated nails, base, per count keg	2.70
Woven fence, carloads (to jobbers)	67 1/2 per cent off list
Woven fence, carloads (to retailers)	65 per cent off list

Bolts and Nuts	
Machine bolts, small, rolled threads	60, 10 and 10 per cent off list
Machine bolts, all sizes, cut threads	.60 and 10 per cent off list
Carriage bolts, 3/4 x 6 in.	
Smaller and shorter, rolled threads	.60 and 10 per cent off list
Carriage bolts, cut threads, all sizes	.60 per cent off list
Lag bolts	.65 and 10 per cent off list
Flow bolts, Nos. 1, 2 and 3 heads	.50 and 10 per cent off list
Other style heads	.50 per cent extra
Machine bolts, c.p.c. and t. nuts 3/4 x 4 in.	50 and 10 per cent off list
Larger and longer sizes	.50 and 10 per cent off list
Hot pressed square or hex. nuts, blank	4.25c. off list
Hot pressed nuts, tapped	4.25c. off list
C.p.c. and t. square or hex. nuts, blank	4.00c. off list
C.p.c. and t. square or hex. nuts, tapped	4.00c. off list
Semi-finished hex. nuts:	
3/8 in. and smaller, U. S. S.	.80 and 5 per cent off list
1/2 in. and larger, U. S. S.	.75 and 5 per cent off list
Small sizes S. A. E.	.80, 10 and 5 per cent off list
S. A. E., 3/4 in. and larger	.75, 10 and 5 per cent off list
Stove bolts in packages	.75, 10 and 5 per cent off list
Stove bolts in bulk	.75, 10, 5 and 2 1/2 per cent off list
Tire bolts	.60 and 10 per cent off list
Bolt ends with hot pressed nuts	.60 and 5 per cent off list
Turnbuckles, with ends, 1/2 in. and smaller	55 and 5 to 50 per cent off list
Turnbuckles, without ends, 1/2 in. and smaller	70 and 10 to 65 and 5 per cent off list
Washers	.5c. to 5.25c. off list

Cap and Set Screws	
Milled square and hex head cap screws	.70 per cent off list
Milled set screws	.70 per cent off list
Upset cap screws	.75 and 10 per cent off list
Upset set screws	.75 and 10 per cent off list
Milled studs	.75 and 10 per cent off list

Rivets	
Large structural and ship rivets, base, per 100 lb.	\$2.75 to \$3.00
Small rivets	.65 and 10 to 70 off list

Track Equipment	
Spikes, 3/8 in. and larger, base, per 100 lb.	\$3.15
Spikes, 1/2 in., 3/4 in. and 5/8 in., per 100 lb.	\$3.15 to 3.50
Spikes, 3/8 in.	3.15 to 3.50
Spikes, boat and barge, base, per 100 lb.	3.50
Track bolts, 3/4 in. and larger, base, per 100 lb.	4.00 to 4.25
Track bolts, 1/2 in. and 3/4 in., base, per 100 lb.	5.00 to 5.50
Tie plates, per 100 lb.	2.55 to 2.60
Angle bars, base, per 100 lb.	2.75

All freight rates from Pittsburgh on finished iron	
Philadelphia, domestic	\$0.32
Philadelphia, export	0.235
Baltimore, domestic	0.31
Baltimore, export	0.225
New York, domestic	0.34
New York, export	0.255
Boston, domestic	0.365
Boston, export	0.255
Buffalo	\$0.265
Cleveland	0.215
Cleveland, Youngstown	
Comb.	0.19
Detroit	0.29
Cincinnati	0.29
Indianapolis	0.31
Chicago	0.34

The minimum carload to most of the foregoing points is 6000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 35c.; ship plates, 40c.; ingot and muck bars, structural steel, common wire products including cut or wire nails, spikes, and wire hoops, 40c.; sheets and tin plates, 40c.; sheets, No. 12 gage and lighter, 50c.; rods, 40c.; wire rope cables and strands, 45c.; wire fencing, netting and stretcher, 40c.; pipes not over 12 in. in diameter, 55c.; over 12 in. in diameter, 2 1/2 c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

Welded Pipe	
Butt Weld	
Steel	Iron
Inches	Inches
Black	Black
Galv.	Galv.
1/4 to 3/8	1/4 to 3/8
1/2 to 3/4	1/2 to 3/4
1 to 1 1/2	1 to 1 1/2
2 to 3	2 to 3
3 to 4	3 to 4
4 to 6	4 to 6
6 to 8	6 to 8
8 to 10	8 to 10
10 to 12	10 to 12
12 to 14	12 to 14
14 to 16	14 to 16
16 to 18	16 to 18
18 to 20	18 to 20
20 to 24	20 to 24
24 to 30	24 to 30
30 to 36	30 to 36
36 to 42	36 to 42
42 to 48	42 to 48
48 to 54	48 to 54
54 to 60	54 to 60
60 to 66	60 to 66
66 to 72	66 to 72
72 to 78	72 to 78
78 to 84	78 to 84
84 to 90	84 to 90
90 to 96	90 to 96
96 to 102	96 to 102
102 to 108	102 to 108
108 to 114	108 to 114
114 to 120	114 to 120
120 to 126	120 to 126
126 to 132	126 to 132
132 to 138	132 to 138
138 to 144	138 to 144
144 to 150	144 to 150
150 to 156	150 to 156
156 to 162	156 to 162
162 to 168	162 to 168
168 to 174	168 to 174
174 to 180	174 to 180
180 to 186	180 to 186
186 to 192	186 to 192
192 to 198	192 to 198
198 to 204	198 to 204
204 to 210	204 to 210
210 to 216	210 to 216
216 to 222	216 to 222
222 to 228	222 to 228
228 to 234	228 to 234
234 to 240	234 to 240
240 to 246	240 to 246
246 to 252	246 to 252
252 to 258	252 to 258
258 to 264	258 to 264
264 to 270	264 to 270
270 to 276	270 to 276
276 to 282	276 to 282
282 to 288	282 to 288
288 to 294	288 to 294
294 to 300	294 to 300
300 to 306	300 to 306
306 to 312	306 to 312
312 to 318	312 to 318
318 to 324	318 to 324
324 to 330	324 to 330
330 to 336	330 to 336
336 to 342	336 to 342
342 to 348	342 to 348
348 to 354	348 to 354
354 to 360	354 to 360
360 to 366	360 to 366
366 to 372	366 to 372
372 to 378	372 to 378
378 to 384	378 to 384
384 to 390	384 to 390
390 to 396	390 to 396
396 to 402	396 to 402
402 to 408	402 to 408
408 to 414	408 to 414
414 to 420	414 to 420
420 to 426	420 to 426
426 to 432	426 to 432
432 to 438	432 to 438
438 to 444	438 to 444
444 to 450	444 to 450
450 to 456	450 to 456
456 to 462	456 to 462
462 to 468	462 to 468
468 to 474	468 to 474
474 to 480	474 to 480
480 to 486	480 to 486
486 to 492	486 to 492
492 to 498	492 to 498
498 to 504	498 to 504
504 to 510	504 to 510
510 to 516	510 to 516
516 to 522	516 to 522
522 to 528	522 to 528
528 to 534	528 to 534
534 to 540	534 to 540
540 to 546	540 to 546
546 to 552	546 to 552
552 to 558	552 to 558
558 to 564	558 to 564
564 to 570	564 to 570
570 to 576	570 to 576
576 to 582	576 to 582
582 to 588	582 to 588
588 to 594	588 to 594
594 to 600	594 to 600
600 to 606	600 to 606
606 to 612	606 to 612
612 to 618	612 to 618
618 to 624	618 to 624
624 to 630	624 to 630
630 to 636	630 to 636
636 to 642	636 to 642
642 to 648	642 to 648
648 to 654	648 to 654
654 to 660	654 to 660
660 to 666	660 to 666
666 to 672	666 to 672
672 to 678	672 to 678
678 to 684	678 to 684
684 to 690	684 to 690
690 to 696	690 to 696
696 to 702	696 to 702
702 to 708	702 to 708
708 to 714	708 to 714
714 to 720	714 to 720
720 to 726	720 to 726
726 to 732	726 to 732
732 to 738	732 to 738
738 to 744	738 to 744
744 to 750	744 to 750
750 to 756	750 to 756
756 to 762	756 to 762
762 to 768	762 to 768
768 to 774	768 to 774
774 to 780	774 to 780
780 to 786	780 to 786
786 to 792	786 to 792
792 to 798	792 to 798
798 to 804	798 to 804
804 to 810	804 to 810
810 to 816	810 to 816
816 to 822	816 to 822
822 to 828	822 to 828
828 to 834	828 to 834
834 to 840	834 to 840
840 to 846	840 to 846
846 to 852	846 to 852
852 to 858	852 to 858
858 to 864	858 to 864
864 to 870	864 to 870
870 to 876	870 to 876
876 to 882	876 to 882
882 to 888	882 to 888
888 to 894	888 to 894
894 to 900	894 to 900
900 to 906	900 to 906
906 to 912	906 to 912
912 to 918	912 to 918
918 to 924	918 to 924
924 to 930	924 to 930
930 to 936	930 to 936
936 to 942	936 to 942
942 to 948	942 to 948
948 to 954	948 to 954
954 to 960	954 to 960
960 to 966	960 to 966
966 to 972	966 to 972
972 to 978	972 to 978
978 to 984	978 to 984
984 to 990	984 to 990
990 to 996	990 to 996
996 to 1002	996 to 1002
1002 to 1008	1002 to 1008
1008 to 1014	1008 to 1014
1014 to 1020	1014 to 1020
1020 to 1026	1020 to 1026
1026 to 1032	1026 to 1032
1032 to 1038	1032 to 1038
1038 to 1044	1038 to 1044
1044 to 1050	1044 to 1050
1050 to 1056	1050 to 1056
1056 to 1062	1056 to 1062
1062 to 1068	1062 to 1068
1068 to 1074	1068 to 1074
1074 to 1080	1074 to 1080
1080 to 1086	1080 to 1086
1086 to 1092	1086 to 1092
1092 to 1098	1092 to 1098
1098 to 1104	1098 to 1104
1104 to 1110	1104 to 1110
1110 to 1116	1110 to 1116
1116 to 1122	1116 to 1122
1122 to 1128	1122 to 1128
1128 to 1134	1128 to 1134
1134 to 1140	1134 to 1140
1140 to 1146	1140 to 1146
1146 to 1152	1146 to 1152
1152 to 1158	1152 to 1158
1158 to 1164	1158 to 1164
1164 to 1170	1164 to 1170
1170 to 1176	1170 to 1176
1176 to 1182	1176 to 1182
1182 to 1188	1182 to 1188
1188 to 1194	1188 to 1194
1194 to 1200	1194 to 1200
1200 to 1206	1200 to 1206
1206 to 1212	1206 to 1212
1212 to 1218	1212 to 1218
1218 to 1224	1218 to 1224
1224 to 1230	1224 to 1230
1230 to 1236	1230 to 1236
1236 to 1242	1236 to 1242
1242 to 1248	1242 to 1248
1248 to 1254	1248 to 1254
1254 to 1260	1254 to 1260
1260 to 1266	1260 to 1266
1266 to 1272	1266 to 1272
1272 to 1278	1272 to 1278
1278 to 1284	1278 to 1284
1284 to 1290	1284 to 1290
1290 to 1296	1290 to 1296
1296 to 1302	1296 to 1302
1302 to 1308	1302 to 1308
1308 to 1314	1308 to 1314
1314 to 1320	1314 to 1320
1320 to 1326	1320 to 1326
1326 to 1332	1326 to 1332
1332 to 1338	1332 to 1338
1338 to 1344	1338 to 1344
1344 to 1350	1344 to 1350
1350 to 1356	1350 to 1356
1356 to 1362	1356 to 1362
1362 to 1368	1362 to 1368
1368 to 1374	1368 to 1374
1374 to 1380	1374 to 1380
1380 to 1386	1380 to 1386
1386 to 1392	1386 to 1392
1392 to 1398	1392 to 1398
1398 to 1404	1398 to 1404
1404 to 1410	1404 to 1410
1410 to 1416	1410 to 1416
1416 to 1422	1416 to 1422
1422 to 1428	

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$6.45
Old range non-Bessemer, 51½ per cent iron.....	5.70
Mesabi Bessemer, 55 per cent iron.....	6.20
Mesabi non-Bessemer, 51½ per cent iron.....	5.55

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian..	10.50c.
Iron ore, Swedish, average 66 per cent iron	10.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal....	42c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	39c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, per unit, in 60 per cent concentrates	\$8.25 to \$10.00
Chrome ore, basic, 48 per cent Cr ₂ O ₃ , crude, per ton, c.i.f. Atlantic seaboard.....	18.00 to 28.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₂ , New York.....	75c. to 85c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$110.00
Ferromanganese, British, 80 per cent, f.o.b. Atlantic port, duty paid.....	110.00
Spiegeleisen, domestic, 19 to 21 per cent, per ton, furnace	\$42.00 to 45.00
Spiegeleisen, domestic, 16 to 19 per cent, furnace, per ton.....	41.00 to 44.00
Ferrosilicon, 50 per cent, delivered, per gross ton	82.50 to 85.00
Ferrosilicon, Bessemer, 10 per cent, per ton, furnace	43.50
Ferrosilicon, Bessemer, 11 per cent, per ton, furnace	46.80
Ferrosilicon, Bessemer, 12 per cent, per ton, furnace	50.10
Ferrosilicon, Bessemer, 13 per cent, per ton, furnace	54.10
Ferrosilicon, Bessemer, 14 per cent, per ton, furnace	59.10
Silvery iron, 6 per cent, per ton, furnace..	32.00
Silvery iron, 7 per cent, per ton, furnace..	33.00
Silvery iron, 8 per cent, per ton, furnace..	34.50
Silvery iron, 9 per cent, per ton, furnace..	36.50
Silvery iron, 10 per cent, per ton, furnace..	38.50
Silvery iron, 11 per cent, per ton, furnace..	41.80
Silvery iron, 12 per cent, per ton, furnace..	45.10
Ferrotungsten, per lb. contained metal....	88c. to 90c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered	12c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.....	11.50c.
Ferrovandium, per lb. contained vanadium	\$3.50 to \$4.00
Ferrocobaltitium, 15 to 18 per cent, per net ton	200.00

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	\$22.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines	23.50

Per 1000 f.o.b. works:

Fire Clay:	High Duty	Moderate Duty
Pennsylvania	\$42.00 to \$45.00	\$37.00 to \$42.00
Maryland	47.00	42.00
Ohio	42.00 to 43.00	37.00 to 39.00
Kentucky	42.00 to 43.00	37.00 to 39.00
Illinois	—	37.00 to 42.00
Missouri	42.00 to 45.00	35.00 to 40.00
Ground fire clay, per net ton.....	—	6.00 to 7.00

Silica Brick:

Pennsylvania	42.00
Chicago	49.00
Birmingham	50.00
Ground silica clay, per net ton....	8.00

Magnesite Brick:

Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.)	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.)	40.00

Chrome Brick:

Standard size, per net ton.....	50.00
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Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$40.00 to \$42.50
Rolling billets, 2-in. and under.....	40.00 to 42.50
Forging billets, ordinary carbons.....	47.50
Sheet bars, Bessemer	42.50
Sheet bars, open-hearth.....	42.50

Slab	\$40.00 to \$42.50
Wire rods, common soft, base, No. 5 to ¼-in.	51.00
Wire rods, common soft, coarser than ¼-in.	\$2.50 over base
Wire rods, screw stock.....	\$5 per ton over base
Wire rods, carbon 0.20 to 0.40.....	3 per ton over base
Wire rods, carbon 0.41 to 0.55.....	5 per ton over base
Wire rods, carbon 0.56 to 0.75.....	7.50 per ton over base
Wire rods, carbon over 0.75.....	10 per ton over base
Wire rods, acid	15 per ton over base
Skelp, grooved, per lb.....	2.40
Skelp, sheared, per lb.....	2.40
Skelp, universal, per lb.....	2.40

Finished Iron and Steel, f.o.b. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, per lb.....	2.15c. to 2.25c.
Rails, light, rerolled base, per lb.....	1.90c. to 2.00c.
Spikes, ½-in. and larger, base, per 100 lb....	\$3.15
Spikes, ½-in., ⅞-in. and ¾-in. base per 100 lb.	\$3.15 to 3.50
Spikes, ¾-in., base, per 100 lb.....	3.15 to 3.50
Spikes, boat and barge, base, per 100 lb.....	3.50
Track bolts, ¾-in. and smaller, base, per 100 lb.	4.15 to 4.25
Track bolts, ¾-in. and larger, base, per 100 lb.	4.75 to 5.50
Tie plates, per 100 lb.....	2.55 to 2.60
Angle bars, per 100 lb.....	2.75
Bars, common iron, base, per lb., Chicago mill.	2.40c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rails, steel reinforcing, base, per lb....	2.15c. to 2.25c.
Ground shafting, base, per lb.....	3.65c.
Cut nails, base, per keg.....	\$3.15 to \$3.25

S. A. E. Semi-finished Castellated Nuts and U. S. S. Semi-finished Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh.)

	Per 1000	S. A. E.	U. S. S.
¼-in.	\$ 4.80	\$ 4.80	
⅜-in.	5.50	6.00	
½-in.	6.50	7.00	
⅝-in.	9.00	9.50	
¾-in.	11.00	11.50	
⅞-in.	15.00	15.00	
1-in.	19.50	20.00	
1 ¼-in.	28.50	28.50	
1 ½-in.	37.00	37.50	
1 ¾-in.	58.50	60.50	
2-in.	88.00	97.00	
2 ¼-in.	132.00	132.00	
2 ½-in.	176.00	176.00	
2 ¾-in.	220.00	220.00	

Larger sizes—Prices on application

Alloy Steel

S.A.E. Series Numbers	Bars 100 lb.
2100* (½% Nickel, 10 to 20 per cent Carbon)...	\$3.00 to \$3.25
2300 (¾% Nickel)	5.00 to 5.25
2500 (5% Nickel)	7.75 to 8.00
3100 (Nickel Chromium)	4.00 to 4.25
3200 (Nickel Chromium)	5.75 to 6.00
3300 (Nickel Chromium)	8.00 to 8.25
3400 (Nickel Chromium)	7.00 to 7.25
5100 (Chromium Steel)	3.50 to 3.75
5200* (Chromium Steel)	8.00 to 8.25
6100 (Chromium Vanadium bars)	4.75 to 5.00
6100 (Chromium Vanadium spring steel).....	4.50 to 4.75
9250 (Silico Manganese spring steel).....	3.75 to 4.00
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	5.00 to 5.25
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum)	4.50 to 4.75
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum)	4.25 to 4.50
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum)	4.25 to 4.50

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton price for bars of same analyses. On smaller than 4 x 4-in. billets down to and including 2½-in. sq. there is a size extra of \$10 per gross ton; on billets smaller than 2½-in. sq., the net ton bar price applies.

*Not S.A.E. specifications, but numbered by manufacturers to conform to S.A.E. system.

FABRICATED STEEL BUSINESS

Awards Slightly Over 10,000 Tons, While Business Pending Exceeds 38,000 Tons

While structural steel awards in the past week were not large, totaling 11,000 tons, as reported to THE IRON AGE, there is a good deal of work in prospect for this season. Projects on which bids have gone in or will go in shortly total 39,000 tons, of which 14,000 tons will be required for a power plant in New Jersey. Apartment buildings to be erected in New York account for 10,000 tons of pending inquiry, and subway work for 4400 tons. Bridge construction pending totals 6230 tons. Apartment buildings in New York account for 3300 tons of the awards, and an office building in Atlanta, Ga., takes 2200 tons. Among the awards are:

Theatre building at 302 West Forty-fifth Street, New York, 400 tons, to Hedden Iron Construction Co.
Loft building at 32-34 West Thirty-ninth Street, New York, 600 tons, to Hedden Iron Construction Co.
Elmer & Amend, Third Avenue and Eighteenth Street, New York, addition, 100 tons, to Hinkle Iron Works.
Guthrie bakery, East Seventy-second Street, New York, 200 tons, to Harris Structural Steel Co.
Paterno apartment building, Seventy-fifth Street and West End Avenue, New York, 650 tons, to Paterson Bridge Co.
Paterno apartment building, Broadway and 108th Street, New York, 850 tons, to Paterson Bridge Co.
Paterno apartment building, Eighty-fifth Street and West End Avenue, 500 tons, to Paterson Bridge Co.
Paterno apartment building, Riverside Drive and 101st Street, New York, 650 tons, to Harris Structural Steel Co.
Paterno apartment building, Eighty-third Street and West End Avenue, New York, 650 tons, to Harris Structural Steel Co.
Virginian Railway, crane runway, 200 tons, to Virginia Bridge & Iron Works.
Hurt building, Atlanta, Ga., addition, 2200 tons, to Levering & Garrigues Co.
American Car & Foundry Co., foundry at Madison, Ill., 300 tons, to Kenwood Bridge Co.
Cushman & Sons, bakery building, 800 tons, let to unnamed fabricator.
Warehouse at Thirty-fourth Street and Eleventh Avenue, New York, 350 tons, to George A. Just Co.
Public School No. 1, Union Hill, N. J., 350 tons, to Fagan Iron Works.
Independent Order of Odd Fellow's Memorial Building, Brooklyn, 300 tons, to Communipaw Structural Steel Co.
Hellman Commercial Trust & Savings Bank building, Los Angeles, 1330 tons, to Llewellyn Iron Works.
Northern States Power Co., sub-station at Aldrich, Minn., 230 tons, to American Bridge Co.
American Brake Shoe & Foundry Co., foundry buildings, Kansas City, Mo., 122 tons, to Kansas City Structural Steel Co.
Alpena, Mich., Ninth Street bridge, 200 tons, to Wisconsin Bridge & Iron Co.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Public Service Corporation of New Jersey, power plant at Kearny, N. J., 14,000 tons.
Twelve apartment buildings to be erected in New York City, totaling about 10,000 tons.
Transit Commission, New York City, elevated construction for subway extension in Borough of Queens, 4400 tons; bids close Nov. 2.
Boston & Maine Railroad, repairs to bridge at Gorham, N. H., 500 tons.
Hotel St. George, Brooklyn, addition, 800 tons.
Power plant at Weymouth, Mass., 400 tons.
Baltimore & Ohio Railroad, two bridges at Chicago, totaling 900 tons; one bridge at Pittsburgh, 300 tons.
Young Women's Christian Association building at Trenton, N. J., 500 tons.
Atlantic Coast Line, shop at South Rocky Mount, N. C., 250 tons.
Steinway & Sons, piano warehouse and salesrooms, Fifty-seventh Street, New York, mentioned last week as requiring 1500 to 2000 tons, now figured at 2500 tons.
Norfolk & Western Railroad, three bridges, totaling 400 tons.

Calmenson Co., St. Paul, warehouse for paper, 250 tons; bids in.

Ruckeye Coal Co., Memocolin, Pa., tippie, 965 tons.
Chicago, Burlington & Quincy, nine girder spans, 630 tons.
South Dakota highway bridges, 2000 tons.
Buffalo & Ohio Railroad, bridge work, 1000 tons.
Kanawha & Michigan Railroad, bridge work, 500 tons.
Harding junior high school, Lakewood, Ohio, 200 tons, bids rejected and to be readvertised.

RAILROAD EQUIPMENT BUYING

Purchases of New Cars This Year Total 64,000—Southern Pacific to Inquire for 18,000

Car purchases for the nine months of 1923 ended Oct. 1 showed a total of only 64,000, which is small in comparison with some of the most active years in car buying before the war. In addition to the new cars contracted for, 20,000 cars were let out by the railroads for repairs. None of the large inquiries for cars, recently mentioned by THE IRON AGE and expected by car builders to make their appearance before the end of the year, has yet come out. The Southern Pacific will probably inquire for 18,000 freight cars, and of the locomotives it considers buying 25 are reported to have been awarded to the Baldwin Locomotive Works.

The Southern Pacific is expected to take early action on a program of 18,000 freight cars, which represents the joint needs of the Southern and Union Pacific and the Pacific Fruit Express.

The Southern Pacific has issued an inquiry for 20 switching locomotives in addition to the 58 engines on which it recently asked figures. The number of these is 43, instead of 58 as first considered, and a Philadelphia dispatch of Oct. 23 is to the effect that the Baldwin Locomotive Works will build 25 of them.

The Missouri Pacific contemplates buying 60 locomotives, instead of 80, as recently reported.

Swift & Co., Chicago, has placed 200 steel underframes with the Cambria plant of the Bethlehem Steel Co.

The Chicago & Alton has placed 350 gondola car bodies with the Ryan Car Co. and 250 composite gondola cars with the Pullman Co., and will shortly enter the market for 250 box cars.

The Burlington is inquiring for 1000 gondola car bodies.

The St. Louis Southwestern is inquiring for repairs on 100 to 1000 box cars.

The Chesapeake & Ohio is inquiring for 25 caboose cars. The Missouri Pacific is in the market for repairs on 25 to 50 passenger cars.

Improving Car Service

WASHINGTON, Oct. 23.—The Car Service Division of the American Railway Association has just made its sixth report concerning the progress made on the program to provide adequate transportation as approved at the meeting of the American Railway Association and of the Association of Railway Executives in New York on April 5. The report shows that from Jan. 1 to Oct. 1 the railroads put 134,636 cars and 2963 locomotives in service. The cars put in service were classified as follows: Box, 52,963; refrigerator, 17,218; coal, 55,575; stock, 3727; flat, 3192; others, 1961. The number of locomotives on order on Oct. 1 was 1242. For the 39 weeks of 1923, the number of coal cars loaded was 7,208,224 as against 4,913,566 for the same period of last year. The number of cars of coke loaded was 568,699 as compared with 332,429, while the cars of ore loaded totaled 1,880,499 as against 1,217,896.

Liquid oxygen explosives are being extensively used in France and Germany in metal mining and quarrying operations. This type of explosive is not, however, being employed in coal mines, because of the assumed danger of causing coal dust explosions. Tests employing liquid oxygen explosives in quarries and metal mines in the United States are being made by the Bureau of Mines at Pittsburgh and at other field stations.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery							
	Copper, New York		Straits	Lead		Zinc	
	Lake	Electro-lytic*	Tin New York	New York	St. Louis	New York	St. Louis
Oct.							
17.....	13.12½	12.62½	41.62½	6.85	6.60	6.65	6.30
18.....	13.25	12.62½	41.62½	6.85	6.60	6.70	6.35
19.....	13.25	12.62½	41.50	6.85	6.60	6.75	6.40
20.....	13.25	12.62½	6.85	6.60	6.72½	6.37½
22.....	13.25	12.62½	40.87½	6.85	6.55	6.72½	6.37½
23.....	13.12½	12.50	41.25	6.85	6.55	6.67½	6.32½

*Refinery quotation; delivered price ¼c. higher.

New York

NEW YORK, Oct. 23.

Most of the markets are inactive and lower. The advance in copper has given place to easier quotations. The lead market is the only one which is steady to firm. Zinc, after advancing, has again declined.

Copper.—Electrolytic copper early last week advanced until some companies were selling as high as 13c., delivered, but this tendency was of brief duration. Demand has since grown smaller and prices have eased until electrolytic copper today is available at 12.75c. to 12.62½c., delivered, for shipment any time this year. It is probable that the metal could be bought for first quarter delivery at these prices. One explanation of the weakness is the admitted fact that production has not been sufficiently curtailed and still is in excess of consumption. The European situation and the decline of the pound sterling are also factors making for weakness.

Tin.—On only one day in the last week was any business of any magnitude done in Straits tin. This was on Oct. 18, when about 250 tons changed hands with dealers the most active buyers. The continued absence of consumers in the market is a feature; in fact, they have bought almost nothing lately. Yesterday about 75 tons was sold on the New York Metal Exchange at 40.75c. and today the market has been exceedingly quiet. The decline in the pound sterling to the lowest point in the year today and the lack of demand from consumers in particular are the causes of the dullness and lower prices. Straits tin was quoted today at 41.25c., New York, mostly nominal. Cables from London report prices there today to have been £202 5s. for spot standard, £200 5s. for future standard and £203 5s. per ton for spot Straits. Arrivals thus far this month have been 3095 tons with 7639 tons reported afloat.

Lead.—The market continues quiet but strong. One factor in the firmness here is the strength of the London market, which has advanced £1 7s. 6d. per ton in a week. Inquiries are reported as fairly satisfactory and demand is about equal to consumption. The price of the leading interest continues at 6.85c., New York, with independents quoting the same price. The Western market is a little easier with 6.55c., St. Louis.

Zinc.—Prime Western, after advancing during the week to about 6.40c., St. Louis, or 6.75c., New York, has again declined and today is quoted for October-November delivery at 6.30c. to 6.35c., St. Louis, or 6.65c. to 6.70c., New York. The advance referred to was due partly to moderate orders from England and to a little better domestic demand, both of which have now lessened decidedly.

Nickel.—Quotations for shot and ingot nickel are unchanged at 29c. to 32c. per lb., with electrolytic nickel held at 32c. by the leading producers. In the outside market quotations for both shot and ingot nickel are both 29c. to 32c.

Antimony.—Due to conditions in China a scarcity has developed and wholesale lots of Chinese metal for early delivery are quoted as high as 8c. per lb., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is

quoted by importers at 25c. to 26c. per lb., New York, duty paid, with some sellers unable to obtain the metal from their principals.

Old Metals.—Business continues very quiet and featureless. Dealers' selling prices are nominally as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	12.50
Copper, heavy and wire.....	11.50
Copper, light and bottoms.....	10.00
Heavy machine composition.....	10.00
Brass, heavy.....	7.25
Brass, light.....	6.00
No. 1 red brass or composition turnings..	8.50
No. 1 yellow red brass turnings.....	6.50
Lead, heavy.....	6.50
Lead, tea.....	5.50
Zinc.....	5.00
Cast aluminum.....	16.25
Sheet aluminum.....	16.25

Chicago

CHICAGO, Oct. 23.—Lead has declined and zinc has advanced, while the other metals remain unchanged. Zinc advanced last week to 6.50c. as a result of foreign demand, but has since declined again following a subsidence of export inquiry. While fair-sized orders for tin and copper have been placed, purchases have been for close-by delivery and the demand for futures has been practically nil. Among the old metals various grades of copper, brass and lead have declined. We quote in carload lots: Lake copper, 13.75c.; tin, 42c.; lead, 6.60c.; spelter, 6.35c.; antimony, 9c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 10c.; copper bottoms, 8.75c.; red brass, 8c.; yellow brass, 6c.; lead pipe, 5c.; zinc, 4c.; pewter, No. 1, 22c.; tin foil, 30c.; block tin, 35c.; all buying prices for less than carload lots.

Automobile Production in September

Continuing the high rate which has prevailed throughout the year, September production of automobiles is reported by the Department of Commerce at 298,910 pleasure cars and 28,455 trucks. Except for January and February, every month of the year has shown more than 325,000 cars, while no month of any preceding year reached 300,000.

The total for nine months amounts to 2,741,377 cars and 288,605 trucks, compared with 1,698,823 cars and 181,228 trucks for 1922, and with 1,223,617 cars and 114,955 trucks for 1921. The nine months' output this year exceeds the full year's output of 1922, which was a record up to that time. The 12 months' production of 1922 was 2,339,703 cars and 245,041 trucks, while for 1921 the figures were 1,535,196 and 147,173.

May was the largest month of 1923, with a total of 393,861 vehicles. April with 382,301, and June with 378,332, followed in second and third positions.

Plans of Ford Motor Co. Plant to Be Built in St. Paul District

DETROIT, Oct. 23.—Plans of the Ford Motor Co. in the St. Paul district, details of which have just been announced, cover a hydro-electric plant with an initial capacity of approximately 18,000 hp., an auxiliary steam power plant and a manufacturing and assembly plant, the latter 600 by 1720 ft., one story. The hydro-electric plant will utilize the Mississippi River dam completed by the Government several years ago with extensive changes to vertical generators rated at 4500 hp. each. Tunnels running beneath the manufacturing building will connect with river rocks and permit the handling of freight by water.

Foundry employers in St. Louis have agreed to an increase in wages to \$7.50 a day for molders in St. Louis and Belleville plants. About 400 men in St. Louis and 175 in Belleville are affected. The scale does not apply to stove foundries. The increase followed threats of a strike.

PERSONAL

E. C. Collins has been elected president of the Crucible Steel Co. of America, succeeding Dr. John A. Mathews, whose resignation was tendered last September before he sailed for Europe, and was accepted at the October meeting of the board of directors. After a long and distinguished career, Dr. Mathews was elected president of the company in 1920, but found that the duties of the position made demands upon his time which interfered with work in the field of metallurgy to which he was devoted and in which he had attained eminent success. It is now his desire to be free to devote his entire time to the solution of some of the problems peculiar to his long chosen field of endeavor. Mr. Collins entered the steel business 25 years ago in the sales department of the Carnegie Steel Co. He continued in the service of subsidiary companies of the United States Steel Corporation until 1922, when he accepted the office of assistant to Chairman H. S. Wilkinson of the Crucible company.



E. C. COLLINS

Howard Williams, formerly with the Electric Alloy Steel Co., Youngstown, Ohio, has returned to the sales department of the Youngstown Sheet & Tube Co., and will be associated with E. S. Rooney in the new branch office at Cincinnati.

R. J. Kaylor, publicity manager Youngstown Sheet & Tube Co., Youngstown, Ohio, recently delivered talks on the manufacture of iron and steel at Boston, Mass., and Portland, Me., using illustrated lantern slides showing operations as conducted at the company's works.

James W. Hook, formerly president Allied Machinery Co. of America, has been elected president and treasurer of the Geometric Tool Co., New Haven, Conn., succeeding the late Howard E. Add. Mr. Hook had taken up his duties as general manager on Oct. 1.

Robert Geddis, for several years a director in the Jones & Laughlin Steel Corporation at Pittsburgh and manager of hot-rolled steel sales, has been made general manager of sales, Western district, with headquarters in Pittsburgh. He will have jurisdiction over selling effort and sales promotion throughout Western States, and particularly on the Pacific Coast. C. S. Bradley, at present district sales manager of the company at Buffalo, succeeds Mr. Geddis, and will have his headquarters in the main offices at Pittsburgh. These changes will become effective on Nov. 1.

R. P. McCormick, for a number of years with the Austin Machinery Corporation, which he represented in the New York district, has been appointed Eastern district sales manager of the Pawling & Harnischfeger Co., Milwaukee. He will be in charge of the New York office, 50 Church Street, and the Philadelphia office, which is locally in charge of T. E. Gallagher.

W. F. Mills has resigned as vice-president and general manager of the Hadfield-Pennfield Steel Co., Bucyrus, Ohio, and has returned to his former home in Sheffield, England.

Frederic H. Dorner was elected president of the Engineers' Society of Milwaukee at its annual meeting on Oct. 17. He was graduated in 1905 from the college of engineering, University of Wisconsin, and for a num-

ber of years has been engaged in the sales engineering business, specializing in power plant equipment and apparatus. He served 10 years as secretary of the Milwaukee society.

George W. Knapp, Jr., factory manager National Enameling & Stamping Co., Baltimore, has been appointed chairman of an industrial safety conference committee which has been formed by the Baltimore Safety Council. Under the direction of the committee a series of conferences and lectures is being arranged for superintendents, foremen and others connected with industrial plants in Baltimore.

George A. Morrissey, consulting engineer St. Louis Coke & Iron Co., Granite City, Ill., and Mrs. Morrissey are spending their honeymoon in California.

F. H. Hurd, who for the past four years has been assistant superintendent of furnaces for the Alabama Co., Gadsden, Ala., has been promoted to superintendent, succeeding H. R. Stuyvesant, resigned.

Walter S. Bronk, for a number of years connected with the Badger-Packard Machinery Co., Milwaukee, and for the last two years manager of the Milwaukee Machinery Co., Milwaukee, has resigned as manager and director of that company.

H. A. Baugh, who has been connected for several years with the Pittsburgh sales office of the Shepard Electric Crane & Hoist Co., has been appointed district sales manager to succeed N. P. Farrar, who resigned to become connected with the Philadelphia office of the Pawling & Harnischfeger Co., Milwaukee.

A. P. Swoyer, formerly vice-president Baltimore Tube Co., Baltimore, is president of the newly organized Swoyer Brass & Copper Co., Woolworth Building, New York. He has been connected with brass and copper interests since 1884, having been head of the A. P. Swoyer Co., Philadelphia, and at one time general sales manager of the Bridgeport Brass Co., Bridgeport, Conn.

W. H. Haines, formerly chief inspector of the Schenectady works, General Electric Co., has retired. W. W. Wagner succeeds him.

R. Dawson Hall, editor *Coal Age*, New York, has been elected a member of the executive committee for the National Safety Council.

A. W. Shaw, of Johnson, Clapham & Morris, Ltd., Manchester, England, importers of hardware, will sail Oct. 27 for England after a several weeks' sojourn in the United States.

Gunnar Dillner, managing director of the Swedish ore firm, the Trafikaktiebolaget Grangesberg-Oxelösund of Stockholm, Sweden, with S. Frisell of the same company arrived in this country last week on the steamship *Berengaria*. They will remain here for several weeks.

Anchor Drawn Steel Co. Will Build in Pittsburgh District

PITTSBURGH, Oct. 23.—Incorporated to make high speed and carbon steel drill rods and to specialize in the manufacture of high grade cold-drawn products, the Anchor Drawn Steel Co. has plans under way for the erection of a plant in the Pittsburgh district and expects to be operating early next year. Dean R. Wilson is president of the new company, which has established offices in the Farmers' Bank Building in Pittsburgh. Mr. Wilson was formerly vice-president and treasurer of the Carbon Steel Co. and also was previously connected with the Kittanning Iron & Steel Mfg. Co. as director and treasurer. George W. Morrison is vice-president and general manager of the new organization and formerly was general superintendent of the Electric Alloy Steel Co., Charleroi, Pa., and following the merger of that company with the Atlas Crucible Steel Co., Dunkirk, N. Y., as the Atlas Steel Corporation, he was general superintendent, and resigned on Oct. 1 from that organization.

OBITUARY

HOWARD ELLSWORTH ADT, president Geometric Tool Co., New Haven, Conn., died suddenly at his country home in Woodbridge on Oct. 14. He was born in Haddenville, Mass., in 1862 and received his education in the public schools of Torrington, Conn. In early life he studied medicine, but was persuaded later to enter the business field, where he designed special wire-working machinery with the firm of John Adt & Son, New Haven. In this new field, he became very proficient and for 14 years was designer and superintendent of construction. In 1899 he organized the Geometric Tool Co. On Sept. 20, Mr. Adt returned from a sojourn of three months through Europe. More recently he visited his camp at Big Island, Me., and had shown no indication of ill health. Acute dilation of the heart was the cause of death. Mr. Adt was treasurer of the Bellis Heat Treating Co. and secretary of Geometric Garage Co. He was also a director of the Morris Plan Bank, the Greist Mfg. Co., the English & Mersick Co. and a member of the Quinnipiac Club.



HOWARD E. ADT

HARRY E. HAMILTON, experimental engineer St. Louis Coke & Iron Co., Granite City, Ill., died recently in a hospital there as the result of injuries received in the company's plant. He was a graduate of Oregon Agricultural College, mechanical engineering department, and his first position was with the Youngstown Sheet & Tube Co. At the outbreak of the war, he enlisted in the Navy and was advanced to ensign in the transport division. For a time he was with the Colorado Fuel & Iron Co.

GENERAL EDMOND HAYES, Buffalo capitalist and engineer, died Oct. 19. He was born in Farmington, Me., and for several years after leaving college he was connected with the Passaic Bridge Co., Passaic, N. J. In 1874 he became associated with the Morrison Field Bridge Co., which later was the Central Bridge Co. In the latter years of his life, General Hayes was interested in the Buffalo Bolt Co. and the Ontario Power Co.

WILLIS S. BROWN, SR., secretary and general manager Belvidere Screw & Machine Co., Belvidere, Ill., died on Oct. 6.

Developments in the problems of surface subsidence resulting from mining operations have been observed in Great Britain and France. At St. Etienne, France, mines under important buildings have caused them to sink as much as 20 ft., but without material damage, because of the careful packing methods employed. The mine subsidence problem is of growing seriousness in various European countries. The English Parliament has recently established a commission to study the situation.

Of United States imports by sea 31.42 per cent in the first eight months of 1923 came in American vessels and 68.58 per cent in foreign vessels. Of the exports, 37.31 per cent went under the American flag and 62.69 per cent under foreign flags. Under both headings, the business carried in American ships was a smaller percentage than had been the case in the similar eight months of 1922.

Blast Furnace and Pipe Mills to Be Built by Youngstown Sheet & Tube Co. at Indiana Harbor

YOUNGSTOWN, Oct. 23.—President James A. Campbell of the Youngstown Sheet & Tube Co. announces that plans have been approved for construction of a 600-ton blast furnace at the Indiana Harbor plant in the Chicago district, the installation of two new butt-weld pipe mills and other improvements which will increase the finished steel capacity of the Indiana Harbor property.

Work on the foundations of the proposed furnace may proceed this fall, in which event it is expected to complete the stack by the middle of next year. It will be about the size of the blast furnace at Warren, Ohio, of the Trumbull-Cliffs Furnace Co., rated among the largest in the world.

With the new butt-weld pipe mills, the company will have a total of 22 tube mills, equally divided between the Youngstown and Chicago plants.

Mr. Campbell believes that pessimism has been overdone with respect to the steel industry. "While business is quiet, it is in better volume than it has been; by April 1 next we should be at capacity again," he says. In explaining the reasons for his viewpoint, he states that the railroads are again commencing to buy heavily for 1924 delivery, that conditions in the oil industry are much improved and that raw material stocks in hands of manufacturing consumers are low. He regards these facts, in connection with the generally satisfactory trade and credit situation throughout the country, as warranting the belief that business will be under strong headway again next year.

Last week Mr. Campbell, as a member of committees representing the National Industrial Council and the National Manufacturers' Association, called on President Coolidge and discussed business conditions with him.

Mr. Campbell states that Japanese orders for sheets have been distributed among many makers and that most Mahoning Valley mills participated in the business.

Refractories for Steel Making

A survey of operating conditions obtaining in open-hearth steel practice will be made by the Department of the Interior, at the ceramic experiment station of the Bureau of Mines, Columbus, Ohio, for the purpose of determining wherein available commercial refractories fall short of giving ideal service. The Bureau of Mines plans later, in cooperation with the steel industry, to undertake the development of ideal refractories for specific services.

Mine owners and miners share in the distribution of profits in an interesting sociological development in the coal mining industry of Great Britain. The mines are grouped in certain districts and monthly, in each district, the gross total expenses of production are deducted from the gross sales. From this gross profit is deducted 6 per cent for invested capital; the remainder, if any, is divided between the owners (17½ per cent) and the miners (82½ per cent). The miners' share, if any, is prorated among the miners of the district.

The plan of employee representation of the Pennsylvania Railroad for the settlement of disputes between men and management was again approved by a secret ballot of shop employees. A recent poll for representatives on various shop craft committees indicated that more than 85 per cent of the employees favored the arrangement.

Machinery Markets and News of the Works

RAILROADS BUYING

Some Orders Are Still Being Placed by Burlington and Other Roads

New York Central Issues an Inquiry for About 20 Machines for Its Collinwood and Elkhart Shops

The principal development of the last week in the machine-tool trade was the placing of orders by the Burlington Railroad on a list of long standing. It was expected by Chicago dealers that the orders would total \$100,000 to \$150,000. Other railroad buying at Chicago, it is expected, will be of a limited character for the remainder of the year, but the Rock Island and Illinois Central have prepared comprehensive lists

which are expected to come out early in 1924.

At Cleveland the New York Central issued an inquiry for about 20 tools for its Collinwood and Elkhart shops. The Nickel Plate has placed orders for a number of tools.

Most of the buying of tools by industrial companies is limited to single machines, and there is a liberal sprinkling of interest in second-hand tools. It has been significant of machine-tool business since the war that when demand for new tools falls off the demand for used tools picks up. With some dealers handling both new and used tools the demand for the latter today is more active than for the former. Many buyers of used tools, however, are insistent on getting machines "as good as new" at prices very much less than those asked for new tools.

New York

NEW YORK, Oct. 23.

THE past week has brought no change in the machine-tool situation, which continues quiet and uninteresting. Some dealers report that last week was one of the least productive of orders for some months. The only exception to this was one dealer who shared largely in the recent orders placed by the Willys-Morrow Co., Elmira, N. Y. There is a fair number of inquiries, but many of these are avowedly for the purpose of making up budgets for 1924 purchases or for inventory.

The Pollack Conduit Co., Inc., 467 Greenwich Street, New York, is planning for the installation of several presses, Bliss type Nos. 18 and 19.

The Auto Table Co., Inc., 120th Street and Jamaica Avenue, Richmond Hill, N. Y., has been making inquiries for a quantity of gray iron castings, 2 to 17 lb. each, plain and cored.

Bids will be received until Jan. 19, 1924, by R. Liddelow, secretary, State electricity commission of Victoria, Melbourne, Australia, for electrical equipment for station "B" of the Morwell power scheme, including transformers, switchgear and auxiliary equipment. Plans at the office of the Bureau of Foreign and Domestic Commerce, 734 Custom House, New York, and Room 830, 76 West Monroe Street, Chicago.

The General Motors Corporation, 224 West Fifty-Seventh Street, New York, has organized a subsidiary to operate in Denmark, Norway and Sweden, to be known as the General Motors A/S, with headquarters at Copenhagen, Denmark. It is proposed to establish an assembling works in the south harbor district of Copenhagen, where a large site has been secured, to be used primarily for Chevrolet automobiles. A parts plant will also be operated. James D. Mooney, vice-president of the parent corporation, in charge of exports, will be in charge. H. G. Zimmerman will be Copenhagen branch manager.

Fire, Oct. 17, destroyed a portion of the five-story factory at 435 East 102nd Street, New York, occupied by the Aluminum Casket Co., and the M. Linder Hardware Floor Works, with combined loss estimated at \$60,000, including equipment. It is planned to rebuild.

The American Fuel Oil Co., Inc., recently organized with a capital of \$4,750,000, will take over and expand the plants of the American Fuel Oil & Transportation Co., 25 Broadway, New York, including the installation of additional equipment.

The Government Power Department, Colombo, Ceylon, is planning for the installation of a number of isolated electric lighting plants, comprising self-contained generating units, oil-engine-operated, in different provinces. The purchases will be made and the work carried out by Government agents in the different localities, a list of which is available at the Electrical Equipment Division, Bureau of Foreign and Domestic Commerce, Washington, file No. 106994.

The H. C. Oswald Supply Co., New York, recently organized, has acquired the plant and business of the Blue & Queripel Co., 2360 Third Avenue, manufacturer of sheet metal products, roofing, etc., and will continue and expand the business. H. C. Oswald and W. J. Maskell head the new organization.

Power equipment, ovens, conveying and other machinery will be installed in the new three-story baking plant, 60 x 230 ft., to be erected by the H. C. Bohack Co., Metropolitan and Flushing Avenues, Brooklyn, estimated to cost \$450,000 with machinery. Koch & Wagner, 32 Court Street, are architects.

The New York Central Lines, 466 Lexington Avenue, New York, is taking bids on a general contract for a new one-story shop at Harmon, N. Y., to cost \$25,000.

The J. Spence Iron Foundry, 921 Garfield Avenue, Jersey City, N. J., has tentative plans for rebuilding the portion of its works destroyed by fire Oct. 11, with loss estimated at \$100,000, including equipment.

Bids will be received by the Water Board, Haledon, Paterson, N. J., until Nov. 5, for a new pumping plant for the municipal waterworks. H. J. Harder, 129 Market Street, Paterson, is engineer.

The plant and equipment of the Bound Brook Engine & Mfg. Co., Bound Brook, N. J., formerly owned by the American Engine Co., will be offered for sale on Nov. 12, by Hugh C. and V. Mott Pierce, trustees.

Manual training equipment will be installed in the two-story addition to be erected at the high school, Ramsey, N. J., estimated to cost \$150,000, for which work will be placed under way at once. C. E. Sleight & Son, Romaine Building, Paterson, N. J., are architects.

Fire, Oct. 16, destroyed the one-story foundry of the Nutley Foundry Co., Nutley, N. J., manufacturer of iron castings, etc. It is planned to rebuild.

The Essex Ice & Cold Storage Co., 204 Murray Street, Newark, has plans for the construction of an addition estimated to cost \$35,000. W. O. Bartlett, 738 Broad Street, is architect. A. C. Hensler is president.

Arrangements are being perfected for a merger of the Public Service Electric Co., Newark, N. J., and the United Electric Co. of New Jersey, an allied organization, under the first noted name. The Public Service company has acquired 10 acres of additional land in the vicinity of the site of its proposed super-power electric generating plant, Hackensack River, Kearny, making a total of 114 acres secured for the project, which will cost in excess of \$10,000,000. The latest purchase will allow for a direct connection between the present Essex power station, Point-No-Point, and the new plant.

Fire, Oct. 20, destroyed a large portion of the plant of the National Fire-Proofing Co., Keasbey, N. J., manufacturer of hollow tile, conduits, etc., with loss approximating \$500,000, including machinery. Headquarters of the company are in the Fulton Building, Pittsburgh.

The Cook Electric Co., 360-64 Jelliff Avenue, Newark, manufacturer of electrical equipment, has filed plans for the

The Crane Market

The market for electric overhead traveling cranes is not overly active, although a few fairly good sized orders are pending and an inquiry has been issued by the General Electric Co., Schenectady, N. Y., for about 14 overhead traveling cranes for the new plant at Philadelphia. The three 15-ton locomotive cranes for which the American Telephone & Telegraph Co., New York, has been in the market for some time are reported to have been awarded to a large crane builder in the Middle West. Business in and around Boston is dull. The Edison Co., Boston, is in the market for a 5-ton crane. The Pennsylvania Railroad, Philadelphia, Eastern Region, is receiving bids on a 10-ton underhung crane equipped for a monorail hoist.

Among recent purchases are:

Northern Pacific Railroad, a 200-ton locomotive hoist from the Whiting Corporation.

H. C. Frick Coke Co., Pittsburgh, a 3-ton hand power crane from the Whiting Corporation.

New York, New Haven & Hartford Railroad, a small hand power crane from the Whiting Corporation.

American Smelting & Refining Co., New York, a 30-ton standard overhead traveling crane with 5-ton auxiliary from the Whiting Corporation.

Northern New York Utilities Co., Watertown, N. Y., an electric overhead traveling crane from the New Jersey Foundry & Machine Co.

Ashville Power Co., Ashville, S. C., a 20-ton used Ohio locomotive crane from Philip T. King, New York.

F. J. Lyons Iron Works, Manchester, N. H., a 3-ton cage control electric hoist from Alfred Box & Co.

Philadelphia Rapid Transit Co., Philadelphia, two 5-ton and two 30-ton electric traveling cranes from Alfred Box & Co.

Hudson Coal Co., Scranton, Pa., a 50-ton electric traveling crane from Alfred Box & Co.

Phoenix Utility Co., 71 Broadway, New York, a 2-ton electric traveling crane from Alfred Box & Co.

Remington & Sherman Co., Philadelphia, two 5-ton cranes from Alfred Box & Co.

Pottstown Boiler & Tank Works, Pottstown, Pa., a 5-ton, 35-ft. span, 3-motor, electric traveling crane from Alfred Box & Co.

Baker Brothers, Toledo, Ohio, a 5-ton, 25-ft. span, overhead traveling crane from the Pawling & Harnischfeger Co.

Biggs Boiler Works, Akron, Ohio, a used 5-ton Shaw crane from the Carbon Steel Co., liquidating equipment.

erection of a two-story addition to cost \$50,000 with machinery. S. S. Cook heads the company.

The Port Newark Brick Co., Newark, William D. Decker, president, recently organized, has leased 2½ acres from the city at Port Newark, for the establishment of a new manufacturing and distributing plant. The installation of traveling crane, conveying machinery, loading and unloading equipment, with new dock, etc., is provided for in the terms of the lease, which becomes effective Feb. 1, 1924.

The Standard Oil Co. of New York, 26 Broadway, New York, has plans for a two-story mechanical shop, 60 x 100 ft., on Eighth Street, Long Island City, to cost about \$50,000. H. D. Best & Co., 949 Broadway, are engineers.

The Hamilton Press & Machinery Co. has been organized for the purpose of manufacturing and selling power presses and special machinery.

The officers are Gordon S. Rentschler, president; C. T. Ziegler, A. A. Byerlein and R. L. Messimer, vice-presidents; J. H. Black, secretary and treasurer. The directors are the above mentioned officers and W. B. Mayo, Henry Rentschler, F. L. R. Francisco and G. A. Rentschler, Jr.

The executive offices are in Hamilton, Ohio. The sales and engineering offices are at 516 Marquette Building, Detroit. Mr. Ziegler is in charge of sales. Mr. Byerlein is chief engineer. Both are practical press engineers.

This company is closely affiliated with the Hooven, Owens, Rentschler Co., Hamilton, Ohio, in whose plants the Hamilton presses will be built. Recently the Hamilton Press & Machinery Co. was awarded a contract for an unusually large press. It will weigh 450,000 lb., is of the "double crank" type, 18 ft. 2 in. between the uprights, and it will exert 1600 tons working pressure.

is expected to have the works ready for operation early next year.

The H. H. Allyn Rubber Corporation, Colonial Trust Building, Philadelphia, manufacturer of tubing, etc., has leased a portion of the C. B. Rogers Building, Norwich, Conn., for the establishment of a new plant. Equipment will be installed for an initial output of about 1000 tubes per day.

The Union Transfer Co., Broad Street Station, Philadelphia, has awarded contract to E. E. Hollenback, Inc., 1804 Brandywine Street, for a one-story addition to its machine shop at Tenth and Spring Garden Streets.

The Ellwood Ivins Tube Works, Oakland, Philadelphia, manufacturer of seamless steel tubing, etc., will build a one-story addition, 175 x 200 ft. Two additional furnaces and other equipment will be installed.

C. M. Roswell, 1162 Marlyn Road, Philadelphia, machinery dealer, has inquiries out for three 1000 kva. transformers, 11,000-2300 volts, oil insulated, second-hand in good condition.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Nov. 6, for two sets of turbine-driven centrifugal pumps, with spare parts, for evaporated brine circulation, schedule 1445, for the Philadelphia Navy Yard.

The Industrial Bureau, Philadelphia, Commercial Museum, Thirty-fourth Street, has received an inquiry from a company at Mexico City, Mex., for American machinery for a soap factory.

The Philadelphia & Reading Railway Co., Philadelphia, has awarded contract to the Belmont Iron Works, for the installation of a crane runway complete at its new engine terminal at Rutherford, Pa.; and to the C. W. Hunt Co., West New Brighton, New York, for coal-handling and sand-handling machinery, drying equipment and auxiliary apparatus. Additional awards will be made later.

Fire, Oct. 13, destroyed four buildings and equipment at the lumber works of Watson Malone & Sons, Laurel Street Wharf, Philadelphia, with loss estimated at \$80,000. The structures will be rebuilt.

Fire, Oct. 15, destroyed a two-story repair shop, 200 x 400 ft., of the Pennsylvania Railroad Co., Camden, N. J., with loss estimated at \$150,000 with equipment. The plant is known as the Pavonia Works; it is planned to rebuild.

The Ford Motor Co., Highland Park, Detroit, is considering the construction of an assembling plant on 500-acre tract at Cape May, N. J., purchased by Henry Ford a number of years ago. It will cost more than \$350,000 with equipment.

E. I. du Pont de Nemours & Co., Wilmington, Del., are planning the construction of an addition to their Philadelphia works, Thirty-fifth Street and Grays Ferry Road, for the manufacture of linseed oil and kindred products. The estimated cost is \$250,000, including machinery.

The City School Board, 121 Chestnut Street, Harrisburg, Pa., D. D. Hammelbaugh, secretary, is having plans drawn for a two-story machine and repair shop and supply building to cost \$25,000.

The American Bosch Magneto Corporation, Springfield, Mass., has disposed of the plant of the Reading Standard Motorcycle Co., State Street, Reading, Pa., to Keyser Fry of

Philadelphia

PHILADELPHIA, OCT. 22.

A PORTION of the former plant of the Standard Roller Bearing Co., Forty-ninth Street, Philadelphia, has been acquired by the Supplee-Wills-Jones Milk Co., Twenty-sixth and Jefferson Streets, for \$250,000 for a new mechanical works. The buildings will be arranged for a machine shop, wagon shop, parts shop, paint works, and other departments.

The laboratory, 50 x 400 ft., now being constructed by the Bureau of Yards and Docks, Navy Department, Washington, at the naval aircraft factory, League Island, Philadelphia, will be, it is claimed, the largest plant of this character ever erected. The largest department will be the machine and overhauling shop, where airplanes and motors will be assembled and tested; a forge shop will be installed, with heat-treating equipment; an accessory shop will be provided with machinery for testing motors and parts, pumps, magnetos and similar apparatus; an electrical instrument and dynamometer department will also be installed for testing electrical apparatus as well as gasoline motors. It

the last noted city, who plans to remodel the works for a bicycle and bicycle parts plant.

Manual training equipment will be installed in the new three-story junior high and grade school to be erected at Lancaster, Pa., for which bids will be received on a general contract until Oct. 30, estimated to cost \$500,000. C. Emlen Urban, Woolworth Building, is architect.

The American Chain Co., Albermarle Street, York, will commence the erection of an addition to its plant, to cost \$65,000 with machinery, for the manufacture of automobile bumpers, for which the company recently secured patent rights. Headquarters are at Bridgeport, Conn.

The Pennsylvania Power & Light Co., Allentown, Pa., is perfecting plans for a new hydroelectric generating plant at Hawley, where an artificial lake, 51 miles long and 2 miles wide will be formed to utilize waters from the Wallenpaupack Creek. A dam will be built at Wilsonville. The new station and transmission system are estimated to cost \$7,500,000 with equipment. The company has also acquired power property in the Upper Perkiomen Valley section and plans extensions in this district. It is operated by the Electric Bond & Share Co., 71 Broadway, New York.

The Phoenix Portland Cement Co., Nazareth, Pa., has plans for two new buildings, 50 x 200 ft., and 75 x 300 ft., to replace a portion of the works destroyed by fire several weeks ago with total loss of about \$500,000. One of the new structures will be used as a machinery building.

The C. Jesnig Mfg. Co., 716 Sansom Street, Philadelphia, has been organized to succeed to the business formerly conducted under the name of C. Jesnig. The company manufactures scientific instruments, precision machinery and production tools. A new line of machinery will be added. Officers of the company are C. Jesnig, president; C. W. Fowler, vice-president; J. M. B. Beecher, secretary and treasurer.

H. C. Weber, 2528 West Lehigh Avenue, Philadelphia, is inquiring for a rolling machine to form cold rolled steel 18 gage and lighter, 8 in. wide, allowing space for five or six pairs of rolls.

New England

BOSTON, OCT. 22.

A FEW machine tool houses in this territory are doing some business, but unless the unforeseen happens October will be one of the most unprofitable months this year, with the majority. No new lists have been issued, and from last accounts a woolen goods manufacturer, contemplating the purchase of a considerable amount of shop equipment for a Southern subsidiary, and a railroad which contemplated spending \$30,000 to \$40,000 for shop tools, have indefinitely postponed action.

Inquiries largely concern single machines, but occasionally a dealer closes for two, three or four tools to one firm. The most important local business the past week was with a maker of textile machinery who purchased a 30-in. x 20-ft. American lathe costing around \$10,000, and another more or less special lathe listed at \$2,000, two machine tool houses participating. Other sales include new sensitive drills to a South Boston manufacturer, three used lathes to a Leominster, Mass., shop, power presses, No. 53 Acme automatics, power hammers and various small lathes to other manufacturers. The Grand Trunk Railway is in the market for punch and shear equipment.

New England broaching machine and broach makers are operating on full schedules and constantly taking on new men. Lathe makers generally are busy, but are doing less business than two months ago. They report the outlook as more or less uncertain. One manufacturer of boring machines recently booked a good order from the Westinghouse Electric & Mfg. Co., but is well cleaned up on back orders. Upright drill makers report a tapering off in business. Most manufacturers anticipate getting some Japanese business as a result of the recent earthquake. Shipments from local manufacturer's representatives' stocks to apply to Japanese business already have been made.

The small tool business is spotty. Some dealers are doing little, while others report sales so far this month far ahead of anything on record. Individual orders in some instances have run as high as \$2,060, and in the aggregate for this month close to \$4,000. Cutters appear to be selling better than other small tools.

Stone & Webster, Boston, are the engineers for a power

plant addition to be erected by the Potomac Electric Power Co., 231 Fourteenth Street, Washington.

The Osgood Bradley Car Co., 351 Mountain Street, Worcester, Mass., will erect a one-story forge shop 50 x 160 ft.

Jenkins Brothers, Bridgeport, Conn., valves, will complete its new plant in December, adding approximately 250,000 sq. ft. floor space to their present manufacturing area.

Notice is issued by the National Machine Co., Wethersfield, Hartford, Conn., that its property, consisting of a three-story manufacturing unit, foundry and two-story office building, having about 20,000 sq. ft. of floor space, will be sold in the near future.

The A. C. Bellefleur & Son Co., 81 Hamilton Street, New London, Conn., dealer in new and used machinery, is in the market for machinery with which to fabricate cylindrical tanks, such as steel barrels and gasoline tanks, of 50 to 100-gal. capacity.

The Portland Terminal Co., subsidiary of the Maine Central Railroad, Portland, is arranging for the early installation of machinery in its new car and locomotive terminal shops at Rigby, South Portland, now being roofed, estimated to cost \$1,500,000, with equipment. T. B. Wheeler is chief engineer.

A machine shop will be installed in the one-story automobile service and repair building, 90 x 180 ft., to be erected on Forest Avenue, Portland, Me., by E. W. Jones, 102 Exchange Street. Webster & Libby, Exchange Street, are architects.

The Weir Stove Co., Taunton, Mass., has preliminary plans for a one-story foundry and machine shop, 50 x 100 ft., estimated to cost \$60,000 with equipment.

The New York, New Haven & Hartford Railroad Co., Boston, has filed plans for a one-story engine house for repair service at 290 Southampton Street, to cost \$25,000.

The Skayef Ball Bearing Co., 330 New Park Avenue, Hartford, Conn., has awarded a general contract to the Industrial Construction Co., 721 Main Street, for a one-story addition, 50 x 75 ft., for which foundations will be laid at once.

H. H. Noack, Forest Street, Stamford, Conn., will commence the erection of a two-story automobile service and repair building, 40 x 125 ft., on East Main Street, estimated to cost \$65,000.

Ovens, power equipment, conveying, and other machinery will be installed in the new four-story plant, totaling about 40,000 sq. ft., to be erected by the Berwick Cake Co., 2220 Washington Street, Roxbury, Boston, at 24-26 Palmer Street and 1127-31 Harrison Avenue, to cost \$70,000. Charles T. Main, 200 Devonshire Street, Boston, is architect and engineer.

The Hartford Woven Wire Mattress Co., 156 Village Street, Hartford, Conn., recently organized, is in the market for cable fabrics, tubing, angle iron, casters, risers, etc. The company is completing its equipment installation and will manufacture steel folding beds, steel couches and cots, and bed springs. Maurias M. Selterman is one of the principals.

Baltimore

BALTIMORE, OCT. 22.

BIDS will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until Nov. 6 for 1344 carbon twist drills, 96 machinists' hammers, 250 dozen hacksaw blades, 288 side cutting pliers and 25 files, schedule 1451, for the Washington Navy Yard, until Nov. 13 for 17,750 standard nuts and bolts for the Puget Sound Navy Yard, schedule 1453; and on Nov. 13 for miscellaneous pump valves for Eastern navy yards, schedule 1470.

The Roanoke Ice & Cold Storage Co., Roanoke, Va., will commence the erection of a new five-story cold storage plant, 100 x 130 ft., to cost \$65,000. Plans are under consideration for an addition to the ice-manufacturing plant to provide 40 tons additional per day. E. C. Tudor is general manager.

The Colonial Forge & Tool Co., Columbiana, Ohio, has acquired the plant of the Enterprise Machine Works, Elkton, Md., and will commence the erection of an addition, including improvements in the present structure. The Columbiana works will be removed to this location and additional equipment installed.

The Construction Quartermaster, United States Army, Munitions Building, Washington, has plans for a one-story addition to the engineering shop at the Bolling Field, D. C., for motor testing and kindred service.

The Hamlet Sign Works, Hamlet, N. C., is planning

the establishment of a new factory to manufacture electric display signs and metal parts, etc., to cost close to \$25,000. M. S. Lynch heads the company.

The Chief of Engineers, United States Army, Room 2825, Munitions Building, Washington, will receive bids until Nov. 16 for 6500 ft. of controller cable, 9-conductor, with reels, advertisement 24-121.

The Dixie Machinery & Supply Co., Dental Building, Spartanburg, S. C., machinery dealer, is in the market for mechanical leather and friction surface belting, and desires to get in touch with manufacturers.

The Schuster-Adams Co., Macon, Ga., recently organized with a capital of \$1,000,000, has preliminary plans for a new plant to manufacture chemicals, electric storage battery apparatus, and kindred specialties, to cost about \$250,000 with equipment. It is planned to build a power house. Dr. Richard Schuster and Hoke Smith, Macon, head the company.

The Common Council, Charlottesville, Va., is planning for electrically-operated pumping machinery in connection with a new waterworks system, estimated to cost \$500,000. Fuller & McClintock, 600 Walnut Street, Kansas City, Mo., are engineers.

R. P. Johnson, Wytheville, Va., machinery dealer, has inquiries out for a 36-in. gage industrial locomotive, 30 to 36 tons, modern Shay type, second-hand, in good condition.

The Consolidated Gas, Electric Light & Power Co., Lexington Building, Baltimore, has preliminary plans for an addition to its generating station on Gould Street, to triple, approximately, the present capacity. It is purposed to install two 20,000 kw. turbo-generators, with auxiliary equipment, within the next 12 months, with the installation of two additional such units closely following. The expansion is estimated to cost \$3,000,000. Herbert A. Wagner is president.

The Ideal Table Co., High Point, N. C., has tentative plans for rebuilding of the portion of its factory destroyed by fire, Oct. 4, with loss estimated at \$70,000 including equipment.

The Port Deposit Quarry Co., Port Deposit, Md., recently organized with a capital of \$150,000, will install quarrying machinery, electric power equipment and other apparatus at its proposed plant near Port Deposit. Charles A. Morrison, Port Deposit, is president and general manager; and R. N. McCullough, secretary.

The Board of District Commissioners, Washington, will receive bids until Nov. 7 for one 12-in. by 5-ft., geared-head, light duty engine lathe, for the local water department.

The Columbus Electric & Power Co., Columbus, Ga., is planning for extensions in its plant and system to cost \$100,000 including additional equipment.

The General Purchasing Officer, Panama Canal, Washington, will take bids until Nov. 5 for an electric-lighting outfit, chain blocks, car wheels, foundry brushes, steel cans, and other equipment, as specified in circular 1566.

The Common Council, Albemarle, N. C., is planning the installation of electrically-operated pumping machinery in connection with extensions in the municipal waterworks, estimated to cost \$90,000. L. C. Russell is town clerk.

The Southern Lumber Co., Pembroke, Ga., has inquiries out for a used metal cutting lathe, in good condition.

The Roberts Power Co., Ball Ground, Ga., is planning for the purchase of an air compressor, about 75 hp., motor-driven; also for a number of small motors, transformers and auxiliary equipment.

Lorick & Lowrance, Columbia, S. C., machinery dealers, have inquiries out for a motor-driven grinding stone.

Officials of the Bond Mfg. Co., Fifth and Monroe Streets, Wilmington, Del., manufacturer of metal bottle seals, etc., have organized the Modern Bond Co., capitalized at \$400,000, to manufacture metal and machine specialties. A site has been selected at Elsmere, near Wilmington, and work will soon commence on a new plant. The company is also operating the Bond Machine Co., Wilmington. S. C. Bond is president of the parent company, and R. W. Bond, vice-president and treasurer.

The Southern Supply Co., Calvert and Saratoga Streets, Baltimore, pipe and fittings, plumbing equipment, etc., has awarded contract to the Consolidated Engineering Co., Calvert Building, for the erection of a new four-story factory, 78 x 100 ft., estimated to cost \$70,000.

The Harley Hardware Co., Valdosta, Ga., has inquiries out for a 60-hp., engine, with governor, shafting and auxiliary equipment.

The Hackley-Morrison Co., Inc., 1708 Lewis Street, Richmond, Va., has inquiries out for two locomotive type portable boilers, 50 and 100 hp., respectively; also for

two flywheels, 14 to 16 ft. diameter, 36 in. face, about 11 in. bore.

T. L. Eberhardt, R. F. D. No. 3, Chester, S. C., has inquiries out for machinery and power equipment to manufacture sand-cement brick.

The Lafayette Mill & Lumber Co., Lafayette Avenue and Pennsylvania Railroad, Baltimore, will build a three-story brick factory and two additional one-story brick buildings at Mosher and Brice Streets, to cost \$90,000.

The Maryland Steel Products Co., Morris Building, Baltimore, will erect an additional building at Ridgely and Bayard Streets, to cost \$8,000.

Pittsburgh

PITTSBURGH, OCT. 22.

LOCAL machine-tool houses report that general inquiry for equipment the past week has been better than for some time. This may be due in part to the recent annual convention of the American Society for Steel Treating, as representatives of machinery companies and buyers came in personal contact and several good inquiries are being figured upon as the result. Inquiry for cranes and hoisting machinery is reported to be more active than for several months. As yet the railroads are not doing much in the way of buying, but new lists are looked for from two or three local railroads within a short time. It is said competition is severe, as some machine builders in urgent need of more business in some cases are willing to name slightly lower prices. Deliveries can be made promptly.

The Jones & Laughlin Steel Corporation, Pittsburgh, has bought from the Alliance Machine Co., three new bridges to take three cranes which are being removed and placed in another location. Each of the bridges has a span of 96 ft. 6 in., and will be installed in the Southside works.

Recently the Westinghouse Electric & Mfg. Co. issued a list of tools for the fourth quarter delivery. It contains 52 tools and includes planers, drill presses and other equipment. As yet none of the business has been placed, but local machinery houses are figuring on the inquiries.

The plant formerly owned by the Hall Steam Pump Co., Galveston Avenue, N. S., Pittsburgh, has been bought by the Standard Sanitary Mfg. Co., which will use the building for a jobbing department, carrying a complete line of products of the Standard company. The plant had not been operated by the Hall company for a considerable time. It consists of brick buildings on a plot, 200 x 250 ft.

The National Bolt & Nut Co., Pittsburgh, is inquiring for bolt head trimmers, capacity 1/2-in. diameter and larger.

Contract has been let by the Pittsburgh & Lake Erie Railroad Co., Pittsburgh, to P. Sinnott's Sons, 2801 Perrysville Avenue, for an addition to its repair shop at Dickerson Run, Pa.

Fire, Oct. 17, destroyed a portion of the plant of the Airtight Steel Tank Co., Mansion Street and the Baltimore & Ohio Railroad, Pittsburgh, with loss estimated at \$25,000 including equipment. It is planned to rebuild.

The Atlas Steel Corporation, Dunkirk, N. J., has commenced dismantling its plant at Charleroi, Pa., formerly the property of the Youngstown Sheet & Tin Plate Co., and will remove most of the equipment to its Dunkirk works, which will be extended. The Charleroi plant will be discontinued permanently.

J. J. Weiler & Sons, Second Avenue and Elm Street, Huntington, W. Va., iron and steel products, have plans for a new two-story steel fabricating plant, 35 x 200 ft., estimated to cost \$50,000.

The McGraw Co., 10-12 South Broadway, Wheeling, W. Va., local representative for the Ford automobile, will commence the erection of a new two-story and basement service and repair works, 85 x 125 ft., at 2011 Main Street, estimated to cost \$75,000. F. F. Harria, Wheeling Steel Corporation Building, is architect.

The Erbacon Gas Coal Co., Morgantown, W. Va., recently organized with a capital of \$250,000, is planning the installation of electric power and mining machinery at its properties. A. Carl Slagle, Morgantown, is one of the heads of the company.

The Standard Gas Co., Jane Lew, W. Va., has acquired the plant and system of the Jane Lew Light & Heat Co., and plans extensions and the installation of additional equipment.

Fire, Oct. 12, destroyed a portion of the plant of the G. M. Johnson Mfg. Co., Jeannette, Pa., manufacturer of

mining machinery, mine safety equipment, etc., with loss estimated at \$55,000 including equipment. It is planned to rebuild.

The Pennsylvania Railroad Co., Pittsburgh, has awarded a general contract to the John F. Casey Co., Union Arcade, for the erection of a new engine house with repair department at Sharpsburg, Pa.

The Tranter Mfg. Co., 105 Water Street, Pittsburgh, manufacturer of engines and parts, is having plans drawn for a new building on Ferry Street. Paul W. Irwin, Renshaw Building, is architect.

The American Sheet Glass Co., Clarksburg, W. Va., has awarded contract to the Simplex Engineering Co., Washington, Pa., for extensions in its plant to cost \$300,000, including additional machinery.

A one-story automobile service and repair works will be erected by the Peters Packing Co., McKeesport, Pa., for company cars and trucks, in connection with a new six-story and basement plant to cost \$175,000. The Gorman-Brown Engineering Co., 40 Rector Street, New York, is engineer.

R. E. Baldwin and K. B. Thomas, West Graham, W. Va., are organizing a company to erect a plant for the manufacture of furniture. A power house will be built. The cost is estimated at \$45,000. R. K. Haskew will be in charge of construction. Mr. Baldwin will be treasurer of the company.

The National Plate Glass Works, Blairsville, Pa., operating the former local plant of the Columbia Glass Works, will commence the erection of a new unit estimated to cost \$3,000,000 with machinery. A power house addition will be built.

The Common Council, Dunbar, W. Va., plans the installation of electrically-operated pumping machinery in connection with a new waterworks plant.

The Sullivan County Electric Co., Dushore, Pa., is organizing two subsidiaries, the Standing Stone and Asylum Township Electric companies, to install and operate plants for service in the two townships.

The Maple Lumber Co., Fenwick, W. Va., recently organized with a capital of \$500,000, has plans for a new lumber mill and power house, to cost \$125,000 with machinery. W. S. Taylor, Fenwick, and J. B. Wolfe, Clarksburg, W. Va., head the company.

Buffalo

BUFFALO, Oct. 22.

BU will be asked early in November by the Morrison Auto Sheet Metal Works, 26 East North Street, Buffalo, for the erection of a new five-story plant, 90 x 140 ft., estimated to cost \$175,000 with equipment. G. M. Wolfe, 1377 Main Street, is architect.

The Champion Switch Co., recently organized under Ohio laws, has taken over the lease of the former plant of the Ferguson Shipbuilding Co., Abbott Road and the Buffalo River, Buffalo, recently secured by the Jeffrey-Dewitt Insulator Corporation, Kenova, W. Va., with which company it will be closely associated. The works will be remodeled and given over to the manufacture of electric switching equipment. Jeffrey-Dewitt insulators will be used for the finished switching units as produced at the plant. F. D. Stranahan is president, and J. F. Sinclair, treasurer and general manager.

The Cutler Ice Co., Binghamton, N. Y., will take bids in November for the initial unit of its ice-manufacturing plant at 310 Front Street, estimated to cost \$70,000 with equipment. J. H. Neff, Canton, Ohio, is architect and engineer.

The Common Council, Akron, N. Y., is planning for the installation of new pumping machinery at the municipal waterworks.

The Niagara, Lockport & Ontario Power Co., Niagara Falls, N. Y., has acquired a large tract at Lewiston, N. Y., as a site for a new power house. The company has been granted permission to purchase and merge the plant and property of the Niagara River Power & Water Supply Co., and plans for extensions.

The Rochester Cinder Block Corporation, 300 Maple Avenue, Rochester, N. Y., is having plans drawn for a new two-story factory on Emerson Street, near the city line, to manufacture cement blocks, etc., to cost \$22,000. The Rochester Associated Architects and Engineers, Duffy-Powers Building, are in charge.

The Buffalo General Electric Co., Buffalo, will commence the construction of a new power house on the Hamburg Turnpike, to cost about \$65,000.

Paul A. Dunn, 2207 Elmwood Avenue, Buffalo, has filed plans for a one-story machine shop.

J. A. Cramer, Buffalo, local representative for the Dodge automobile, has awarded a general contract to the Turner Construction Co., 244 Madison Avenue, New York, for a

three-story addition to his service and repair building, 51 x 110 ft.

The Common Council, Orchard Park, N. Y., is planning for the installation of electrically-operated pumping machinery in connection with a new municipal waterworks, estimated to cost \$200,000. White & Getan, Mutual Life Building, Buffalo, are engineers.

The Trico Products Corporation, 624 Ellicott Street, Buffalo, manufacturer of metal and stamped metal products is planning the erection of a four-story addition, 96 x 132 ft. J. R. Oishei is president.

The Garlock Packing Co., Palmyra, N. Y., manufacturer of mechanical packings, has awarded a general contract to the Curran-Mason Co., Rochester, N. Y., for a one-story and basement building, 100 x 200 ft., to cost \$150,000. J. F. Strobel, E. & B. Building, Rochester, is architect.

The Common Council, Herkimer, N. Y., plans the installation of electrically-operated pumping machinery in connection with extensions in the municipal waterworks, estimated to cost \$50,000.

Electric power equipment, conveying, screening and other machinery will be installed in the flour mill and elevator to be constructed at Childs Street and the Buffalo River, Buffalo, by the Russell-Miller Milling Co., Security Bank Building, Minneapolis, Minn., estimated to cost \$500,000.

The Automatic Tool Co., Maplewood, N. J., will manufacture several tools by contract and will consider bids on the work at an early date. L. W. Berger heads the company.

The White Collapsible Construction Corporation, 150 Nassau Street, New York, incorporated with \$150,000 capital stock, will manufacture portable, collapsible garages. All work will be done by contract for some time. Bids are now being considered. Samuel White is president and treasurer, H. Gargula, vice-president and D. McDonald, secretary.

Detroit

DETROIT, Oct. 22.

ERECTION will commence on a new one-story plant on Trenton Street, Detroit, for the United Automatic Screw Co., estimated to cost \$27,000.

The Dunn Sulphite & Paper Co., Port Huron, Mich., Theodore Dunn, Detroit, president, is considering plans for new works on the St. Clair River, fronting on the line of the Grand Trunk Railroad, Port Huron, estimated to cost \$500,000, including machinery. A power house and machine shop will be constructed.

The Wolverine Power Co., Edenville, Mich., is disposing of a bond issue of \$1,570,000, the entire proceeds to be used for the construction of four hydro electric generating plants on the Tobacco and Tittabawassee Rivers at Edenville, Sanford, Smallwood and Secords, with generating output of 15,000 hp. The company will also expend an additional \$800,000 for a power substation at Edenville and a new transmission line from the last noted place to Zilwaukee, Mich. Holland, Ackerman & Holland, Ann Arbor, Mich., are consulting engineers. Frank I. Wixom is president.

Electric power equipment, control apparatus, conveying and other machinery will be installed in the two-story printing plant, 80 x 154 ft., to be erected by the Franklin-Lansing Co., Lansing, Mich., recently organized, for which a general contract has been awarded to the H. G. Christman Co., Lansing. It will cost about \$165,000, including equipment. Richmond Short and George Scovell head the company.

The Ford Motor Co., Highland Park, Detroit, is completing plans for several new building at its River Rouge plant, each one-story, 95 x 1320 ft., 100 x 620 ft., 100 x 420 ft., and 100 x 400 ft., respectively, estimated to cost \$500,000 with equipment. Albert Kahn, 1000 Marquette Building is architect.

The Detroit Aero Metals Co., 657 Lycaste Street, Detroit, has filed plans for the erection of its initial plant unit, comprising a one-story building with two-story power house, estimated to cost \$75,000.

The Continental Motors Corporation, Muskegon, Mich., manufacturer of gasoline engines, has acquired property on Western Avenue and adjoining sections, totaling 5 acres, for future plant expansion.

The Herndon Fruit Co., 123 North East Street, Detroit, will commence the construction of a new cold storage plant, 30 x 280 ft., estimated to cost close to \$50,000.

The Great Western Smelting & Refining Co., 5201 Loraine Street, Detroit, has awarded a general contract to P. H. Piper, Sun Building, for the erection of a one-story foundry.

The Capitol Steel Corporation, Detroit, David F. Stockbridge, president, has preliminary plans for a new one-story fabricating plant on Holmes Street. It is expected to commence work early next year.

The Calumet & Hecla Mining Co., Calumet, Mich., has commenced excavations for a new fuel pulverizing plant at its local property and purposes to have the structure ready for the machinery installation early next year. Tentative plans are under consideration for the installation of additional furnaces, traveling cranes and other equipment.

The Kawneer Mfg. Co., Niles, Mich., manufacturer of metal store fronts, etc., will soon commence the erection of a new three-story and basement building, 50 x 100 ft., to cost \$75,000. Holabird & Roache, 104 South Michigan Avenue, Chicago, are architects.

Foundations are under way for the one-story plant, 180 x 240 ft., on East Eighth Street, Holland, Mich., for the Federal Mfg. Co., Holland, manufacturer of stamped metal products, estimated to cost \$80,000. Byron E. Parks & Son, 623 Michigan Trust Building, Grand Rapids, are engineers.

The Towson Body Co., Detroit, has awarded a general contract to the H. G. Christman Co., Stevens Building, for a new six-story plant estimated to cost \$95,000.

Cleveland

CLEVELAND, Oct. 22.

THE New York Central Railroad has issued a list of about 20 machine, mostly for its Collinwood and Elkhart shops. Dealers are getting a fair volume of single tool orders and inquiry has improved somewhat. The American Bosch Magneto Co. placed an order during the week with a local manufacturer for 6 turret lathes and local dealers made a few small lot sales in the Detroit territory. Some prospective purchasers are showing a hesitancy about placing orders either awaiting an upward turn in business or the booking of pending orders for their own products. The demand for good used machinery is quite satisfactory.

The New York Central list includes the following:

- Seven 18-in. lathes.
- Four 24-in. lathes.
- Two punching and shearing machines.
- Two ½ to 3-in. pipe cutting and threading machines.
- One 2500-lb. steam hammer.
- One 3-lb. radial drill.
- One 40-in. band saw.

The Rex File Co., Newcomerstown, Ohio, is considering the erection of four factory buildings that will more than double its present capacity.

The Willys-Overland Co., Toledo, Ohio, has leased the building of the George W. Smith Co., Inc., Philadelphia, and will use it as an assembling plant. It will probably be placed in operation by Jan. 1.

The Ohio Power Co. has secured authorization from the State Public Utilities Commission to issue \$8,000,000 in bonds for extension work. The company will build a substation at Rockhill, near Lima, and transmission lines from Fostoria to the new substation and from Philo to Canton. Part of the proceeds of the bond issue will also be used to complete a large generating plant at Philo, Ohio.

The Kauffman Metal Products Co., which recently purchased the plant of the Modern Glass Co., Toledo, Ohio, will equip it for the manufacture of ring gears and other products. It will continue to operate its Bellefontaine, Ohio plant.

The Cleveland Wheelbarrow & Mfg. Co., Station D, Cleveland, is inquiring for a No. 4-W, Bliss or equivalent, wiring press, with 24-in. stroke and 50 in. between gibs.

The Ravenna Furnace & Heating Co., Ravenna, Ohio, has tentative plans for an addition to its works on Cleveland Avenue.

The Libbey-Owens Sheet Glass Co., Nicholas Building, Toledo, Ohio, is perfecting plans for new works to cost about \$1,000,000 including machinery. A power house will be erected. The Devore Co., Nicholas Building, is architect and engineer.

Manual training equipment will be installed in the new two-story and basement junior high school to be erected at Piqua, Ohio, estimated to cost \$175,000, for which bids are being received on a general contract until Oct. 31. Schenck & Williams, Mutual Home Building, Dayton, Ohio, are architects.

Chicago

CHICAGO, Oct. 22.

THE Burlington is finally closing its list of long standing with the probability that it will conclude purchases of from \$100,000 to \$150,000 worth of equipment before the expiration of the current week. Other railroad buying will probably be of a limited character until the opening of the new year. The Illinois Central has about a dozen inquiries pending and the Rock Island expects to buy a few tools within the next month or two, although it has not yet actually asked for figures. Both the Rock Island and the Illinois Central, however, have prepared comprehensive lists which are scheduled to come out some time early in 1924.

Machine tool orders from industrial sources, although scattered, bulk larger than in September. Typical of small purchases which are being made are the following: Pyle National Co., Chicago, two 14-in. x 6-ft. engine lathes; Link-Belt Co., Indianapolis, a 14-in. x 6-ft. and a 16-in. x 8-ft. lathe; Fairbanks, Morse & Co., Three Rivers, Mich., an 18-in. x 8-ft. lathe; Illinois Watch Co., Springfield, Ill., a 14-in. x 7-ft. lathe. The Pettibone-Mulliken Co., Chicago, has placed an order for a 2-in. forging machine, but has deferred action on the list published here last week until the first of next year.

It develops that A. N. Day, last week reported as sojourning in Chicago for the purpose of buying equipment for the South Australian Railways, will not personally place any orders. The purchase of equipment will be done by F. J. Shea, chief engineer of railroads, Islington, Adelaide, South Australia, who has not yet arrived in this country. It is planned completely to equip a new railroad shop. Tools to be bought include horizontal and vertical boring mills, planers for both general shop and frog and switch work, heavy duty lathes, wheel and axle lathes and other machines generally found in a railroad shop.

James A. Kennedy, care of Van Gunten & Van Gunten, 26 East Huron Street, Chicago, architects and engineers, is having plans prepared for the construction of a one-story machine shop, 125 x 125 ft., at Maywood, Ill.

The Common Council, White River, S. D., is having plans completed for the construction of a municipal hydroelectric power plant and system. J. C. Jacobson, 1624 Harmon Place, Minneapolis, Minn., is engineer.

Manual training equipment will be installed in the high school to be erected at Alden, Minn., estimated to cost \$100,000, for which foundations will soon be laid. Gaarder & Gaarder, Albert Lea, Minn., are architects.

The Chicago, Milwaukee & St. Paul Railroad Co., 80 East Jackson Boulevard, Chicago, will commence the construction of a new engine house, with repair department at Monticello, Iowa, estimated to cost \$60,000.

The Russell Grader Co., 2027 University Avenue, Minneapolis, Minn., manufacturer of grading machinery, road equipment, etc., will hold in abeyance the erection of its one-story addition, estimated to cost \$60,000. E. E. Ellertson is president.

The Northern States Power Co., Minneapolis, Minn., has acquired a site for hydroelectric development on the St. Anthony River, heretofore held by the Pillsbury Flour Mills Co., and will perfect plans for using the property in the near future. The Wisconsin-Minnesota Light & Power Co., a subsidiary, will soon commence the construction of a new plant near Wisconsin, Wis., to cost about \$1,000,000 with machinery. It will also erect new power substations at Red Wing, Minn., and Colby, Wis., to cost \$65,000.

Bids will be received by the city clerk, McLeansboro, Ill., until Nov. 3, for pumping machinery and other equipment for the municipal waterworks. The W. A. Fuller Co., Railway Exchange Building, St. Louis, is engineer.

The Midwest Refining Co., First National Bank Building, Denver, Colo., has plans for the construction of an electric power plant in the vicinity of Casper, Wyo., and for the electrification of its properties in the salt Creek oil field in this section, to cost \$5,000,000 with machinery.

The Lake Shore Steel & Machinery Co., 163 North Michigan Avenue, Chicago, is in the market for standard brands of high speed steel bars, drills and steel and carbon steel drills.

Milwaukee

MILWAUKEE, Oct. 22.

WHILE the progress of the trade in machine-tools is not rapid, there are no discouraging features in the situation. Demand still is mostly for replacement, but this means more than the mere replacement of worn-out machines and includes the constant effort to increase efficiency and offset skilled labor shortage so far as possible. Locally, foundries and machine shops are holding their own and making only the most urgently needed extensions. Automotive industries apparently have filled their heaviest need for the present, although aggregate sales are of fair volume still.

The American Metal Products Co., Thirty-third Avenue, and Burnham Street, Milwaukee, is inquiring for a cropping shear, a squaring shear, and a roll lathe taking work 72 in. long and 22 in. diameter, for a new rolling mill now being added. The building will be 70 x 120 ft. A Lewis 12-in. bar mill, five stands, three high, and a 16-in. sheet mill, three stands, two high, have been purchased from the Briggs-Turivas Co., Joliet, Ill., together with a 400 hp. General Electric motor. The American company heretofore has made only ingots and castings of Ampeco bronze, but at the completion of the new rolling mill will make bars, sheets and plates from straight brass and copper as well as the special process metal. Its business is largely with the automotive, chemical and paper mill industries. Carl J. Zaiser is secretary-treasurer and general manager.

The Peck-Foster Motor Co., Superior, Wis., contemplates the erection of a garage, sales and service building at Ogden Avenue and Belknap Street, estimated to cost \$100,000. It will be 100 x 120 ft., two and three stories, with a machine shop area of about 6000 sq. ft. Work will begin about March 15. Dean Foster is vice-president and general manager.

The Triumph Stove & Heater Co., now occupying leased quarters at Forty-ninth and State Streets, Milwaukee, has concluded negotiations with the Chamber of Commerce, Appleton, Wis., to relocate its plant and offices in that city. An existing building will be provided which will require complete new equipment. The Triumph company manufactures a smokeless soft coal stove for domestic and commercial purposes. Herman Klein is president.

The Feilbach Mfg. Co., Mayville, Wis., manufacturer of metal specialties, has ordered plans and estimates for a new shop, 75 x 100 ft., two stories and part basement, to be built early next spring. An investment of \$5,000 in building and machinery is contemplated. A. O. Feilbach is president.

The Roberts Brass Co., 178-183 Lincoln Avenue, Milwaukee, which is erecting an addition to its foundry and machine shop, is in the market for molding machines, a buffer and several lesser items of equipment.

The Finkler Motor Car Co., 924-928 Third Street, Milwaukee, let contracts Oct. 16 for a one-story brick and concrete addition, 60 x 100 ft., to be used largely as a machine and service floor.

A. G. Tappen and Axel V. Wallentine, Madison, Wis., patentees of a new type of reciprocative shock absorber, are planning to engage in the manufacture of the device.

The Appleton Pattern Works, established at Appleton, Wis., in May by B. F. Wachholtz, formerly a pattern manufacturer in Milwaukee, has taken additional space in the former Reliance Motor Truck Co. factory and will install equipment for wood and metal patterns, templates, etc. Extension of output is made necessary by enlargement of the trade territory to cover the entire Fox River Valley.

The Milwaukee Coke & Gas Co., foot of Greenfield Avenue, Milwaukee, has placed contracts for a benzol by-products building, 49 x 82 ft., and a tank house, 35 x 100 ft., of steel construction, for the replacement of its benzol plant, which was wrecked by explosion and fire in August. Equipment purchases are being completed. J. W. Schaffer is president and chief engineer.

The Board of Public Works, Fond du Lac, Wis., is asking bids until Oct. 29, under revised plans, for the equipment and construction of an addition to the sewage pumping station and disposal plant. The work is estimated to cost about \$25,000. George H. Stanchfield is consulting engineer, and J. F. Hohensee, secretary of the board.

The Curtis Auto Co., 143-145 Eighth Street, Milwaukee, has deferred for some time its purchases of shop equipment and tools for its new sales and service building at Broadway and Martin Street, owing to a revision of plans by the Federal Engineering Co., 444 Milwaukee Street, which will take new bids on the building after Nov. 1. The structure

will be 100 x 128 ft., two stories and basement and cost about \$125,000 complete.

The Deerfield Canning Co. of Deerfield, Wis., is being organized by Herman Wertheimer, 217 North Fifth Street, and W. S. Sieber of Watertown, Wis., and G. O. Bergland of Deerfield, to establish a pea cannery by rebuilding the Bergland warehouse. It will be in the market for a new or second hand 100-hp. steam engine, two new 125-hp. boilers, a full complement of motor-driven canning machinery, conveyors, etc.

The Milwaukee Board of School Directors, Tenth and Prairie Streets, will close bids Nov. 1 for a service building at Eleventh and Prairie Streets, which will be provided with machinery for servicing and repairing equipment, furniture, etc., of the Milwaukee graded and high schools. Frank M. Harbach is secretary and business manager.

The Chain Belt Co., Milwaukee, is in the market for a gate shear, capacity $\frac{3}{8}$ -in. or $\frac{1}{2}$ -in. x 10 ft.

The Gulf States

BIRMINGHAM, Oct. 22.

EXCAVATIONS will soon be made for the initial buildings for the new mill of the Southwestern Portland Cement Co., Two Republics Buildings, El Paso, Tex., at Fort Worth, Tex., estimated to cost \$1,000,000 with machinery. A power plant and machine shop will be built. O. J. Binsford is secretary and superintendent.

The Valley Electric & Ice Co., San Benito, Tex., is perfecting plans for the construction of a new generating station to cost more than \$100,000 with machinery.

Fire, Oct. 14, destroyed a portion of the cottonseed oil mill of the Western Cotton Oil Co., Haskell, Tex., with loss estimated at \$100,000 including machinery. It is planned to rebuild.

The Alabama Lumber Co., Selma, Ala., has tentative plans for rebuilding the portion of its plant recently destroyed by fire with loss estimated at \$110,000, including equipment.

The Sweet Glass Co., P. O. Box 430, Monroe, La., recently organized, is perfecting plans for works to manufacture glass containers, headlight lenses for automobiles, and kindred specialties, estimated to cost \$85,000. A power house will also be built. The equipment will include presses, automatic blow machines, crushers, motors and other power apparatus. A. H. Sweet is president and general manager.

The Common Council, Grand Saline, Tex., plans the installation of electrically-operated pumping machinery in connection with extensions at the municipal waterworks to cost \$80,000. H. N. Roberts, 422 Irving Place, Dallas, Tex., is engineer.

The Elephant Butte Irrigation District, El Paso, Tex., has tentative plans for a new hydroelectric generating plant about 20 miles south of the present Elephant Butte development, estimated to cost \$3,500,000.

The East Coast Railway Co., St. Augustine, Fla., is perfecting plans for new car and locomotive terminal at South Jacksonville, Fla., with power house and machine shops, estimated to cost \$1,000,000. W. G. Brown is engineer.

The Imperial Petroleum Corporation, Tampa, Fla., recently organized with capital of \$1,000,000, will take over and expand the local company of the same name. Work will soon commence on a new storage and distributing plant on the Tampa waterfront, to cost \$150,000 including equipment. Miller A. Murray is president, and B. L. Hammer, secretary.

The Florida Lime Co., Ocala, Fla., has inquiries out for a rotary dryer, with capacity of about 6 tons per hr.; also for an oil-operated engine, from 65 to 75 hp.

The Gulf Coast Lines, Houston, Tex., has plans under way for a new engine house and general machine repair shops at Brownsville, Tex., estimated to cost \$100,000 including machinery. C. S. Kirkpatrick, Houston, is chief engineer.

The Grayburg Refining Co., San Antonio, Tex., operating a local oil refining, is planning for extensions and improvements, to cost \$100,000 with equipment. New stills, tanks, refining machinery and other equipment will be installed.

Plans have been authorized by the Ford Motor Co., Highland Park, Detroit, for the first unit of its new assembling plant at Jacksonville, Fla., consisting of a main one-story works, 200 x 560 ft., with daily output of 150 automobiles. It is estimated to cost \$275,000 with machinery. Albert Kahn, 1000 Marquette Building, Detroit, is architect.

The Texas Power & Light Co., Dallas, Tex., is perfecting plans for extensions in its transmission system, including additional power stations and machinery, to cost \$1,000,000, for service at Tyler, Palestine and in the Powell oilfields district.

The American Marble & Granite Co., Sylacauga, Ala., recently organized, is perfecting plans for a new polishing and finishing plant, to cost \$35,000. In addition to polishing and grinding equipment, other machinery will be installed including air compressors, motors, air drills and auxiliary apparatus. J. D. Ratchford is president and C. C. Farmer, general manager.

The Common Council, Blountstown, Fla., has authorized plans for a municipal electric lighting plant, including improvements in the waterworks system, with electrically-operated pumping machinery. Bonds for \$50,000 have been voted.

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, has engaged A. C. Finn, Bankers' Life Building Houston, Tex., architect, to prepare plans for its factory branch at Broadway and McKinney Street, to be four stories, 125 x 125 ft., estimated to cost \$150,000.

The Common Council, Florence, Ala., is planning for the installation of electric pumping machinery at the municipal waterworks, to replace present steam-driven equipment.

The Ehrlich Products Co., Austin, Tex., has inquiries out for lubricating pumping equipment.

The Jewel Battery Co. of Texas, Box 503, Tyler, Tex., organized to manufacture batteries and like products, will be in the market for equipment in the near future. V. T. Kennedy is president.

Cincinnati

CINCINNATI, OCT. 22.

THERE is undoubtedly an improvement in the number of orders placed for machine tools this month compared with September. The past week was a fair one for local manufacturers. Buyers included the Nickel Plate Railroad, Carnegie Steel Co., and the American Laundry Machine Co., Cincinnati. The Michigan Stamping Co., Detroit, also bought a number of miscellaneous tools. While inquiries are not heavy, orders are looked for from the automotive industry during the week, and railroad buying is expected to be resumed with the closing of the Burlington and Pennsylvania lists. Second-hand tools are in good demand, one local dealer reporting the sale of 40 machines of various types to date in October.

The Case Crane & Engineering Co., Columbus, Ohio, has taken over the greater portion of the plant of the Kilbourne & Jacobs Mfg. Co., recently purchased by F. R. Huntington, of the Huntington National Bank, for \$900,000. A portion of the property, including 5½ acres and the erecting shop, has been purchased by the Jeffrey Mfg. Co., and will be used as a warehouse. The equipment in the erecting shop will be moved to the Curtis Avenue plant of the Case Crane & Engineering Co. It is the intention of the latter company to operate both plants, according to Paul T. Norton, president.

The plant and equipment of the Quick Change Chuck Mfg. Co., Arcanum, Ohio, will be sold at public auction Nov. 8. It includes a manufacturing building and machine tool equipment. H. R. Fourman is receiver.

The Island Creek Coal Co., Cincinnati, is erecting a coal unloading plant, in which coal handling machinery estimated to cost \$50,000 will be installed.

The Andrews Baking Co., Dayton, Ohio, will award contract for the erection of a new plant, 70 x 120 ft., two stories, to cost with equipment, approximately \$75,000. The building will be of reinforced concrete. The G. L. Ohmart Co., Springfield, Ohio, are engineers.

The Eden Washer Corporation Paterson, N. J., has awarded contract to the Robbins & Myers Co., Springfield, Ohio, for the manufacture of the Eden washing machine. W. J. Myers, vice-president Robbins & Myers Co., states that production will start shortly and it is hoped to bring the output up to 1000 machines a month. Additional men will be added to the force, although this will take place gradually. The Eden Washer Corporation will maintain general offices at the Springfield plant, with the sales office in New York.

The Cincinnati Planer Co., Cincinnati, Ohio, is in the market for used open side planers, 30 to 48-in.; also used vertical boring mills, 48 to 72-in.

The C. A. S. Products Co., Box 84, Columbus, Ohio, is inquiring for a Cleveland full automatic turret type screw machine, 2¼-in. capacity.

Indiana

INDIANAPOLIS, OCT. 22.

BIDS will be called at once by the H. T. Electric Co., 612 North Capitol Avenue, Indianapolis, for its new plant to manufacture electrical specialties, estimated to cost \$25,000. Edward D. Pierre, Occidental Building, is architect.

The International Harvester Co., Illinois and Garvin Streets, Evansville, Ind., has awarded a general contract to the M. J. Huffman Construction Co., Evansville, for a one-story building, 83 x 130 ft., to cost \$30,000.

A cold storage and refrigerating plant will be installed in the new four-story factory, 68 x 200 ft., to be erected at 127-33 North Alabama Street, Indianapolis, by the Furnas Ice Cream Co., estimated to cost \$90,000, including equipment.

The La Salle Paper Co., 402 East Madison Street, South Bend, Ind., has awarded contract to Kuehn & Jordan, 725 Welber Street, for its one and two-story paper mill, estimated to cost \$800,000, including machinery. Freyeremuth & Maurer, Farmers' Trust Building, are architects.

The Monarch Mfg. Co., Muncie, Ind., recently organized with a capital of \$75,000, is planning the establishment of a new plant to manufacture shock absorbers. The company is now operating a small works, which will be removed to the new site and additional machinery installed.

The Lyvewyre Mfg. Co., Indianapolis, has leased property at 20 South Capitol Avenue, for the establishment of a new works to manufacture battery parts and kindred electrical equipment.

The Central South

ST. LOUIS, OCT. 23.

CONTRACT has been awarded by the Westinghouse Electric & Mfg. Co., East Pittsburgh, to the Miller-Stouch Construction Co., Kansas City, Mo., for its proposed three-story and basement factory branch at Kansas City, 115 x 150 ft., estimated to cost \$100,000. P. H. Anthony, Waldheim Building, Kansas City, is architect.

The Pittsburg Monument & Marble Works, Inc., Pittsburg, Kan., has preliminary plans for the erection of new works estimated to cost \$100,000, including grinding, polishing, conveying and other machinery. P. W. White is president.

M. L. Hardy, 7370 Manchester Avenue, Maplewood, Mo., will install a mill and power house on timber property recently acquired in the vicinity of Cassville, Mo., to include portable saw mills, bolter mills, rip tables, hauling machinery and other equipment for the production of handle blanks, etc.

The Chicago, Rock Island & Pacific Railroad Co., 139 West Van Buren Street, Chicago, has awarded contract to Joseph E. Nelson, 3240 Michigan Avenue, for a new engine house with repair department at Shawnee, Okla., estimated to cost \$45,000.

The Common Council, Lenora, Kan., is planning the installation of electrically-operated pumping machinery in connection with extensions and improvements in the municipal waterworks, estimated to cost \$35,000. The Ruckel Engineering Co., Hutchinson, Kan., is engineer.

The Tar River Machinery Co., Cardin, Okla., is planning for the installation of a heavy duty lathe.

The Turner, Day & Woolworth Handle Co., Inc., 1404 Adams Street, Nashville, Tenn., is planning to rebuild the portion of its factory recently destroyed by fire with loss estimated at about \$90,000, including machinery.

The Louisville Gas & Electric Co., 311 West Chestnut Street, Louisville, has filed plans for a one-story automobile service and repair building at 701 Ormsby Avenue, for company trucks and cars.

The Nashville Paper Stock Co., Second Avenue and Church Street, Nashville, Tenn., has awarded contract to the Maugaus & Bell Co., Murfreesboro, Tenn., for a new plant, estimated to cost \$50,000 including equipment. D. L. Ledbetter is secretary.

The Common Council, Arkansas City, Kan., will soon take bids for electric pumping machinery and other equipment for extensions in the municipal waterworks estimated to cost \$50,000.

The North American Co., 60 Broadway, New York, has tentative plans for a hydroelectric generating plant at the Flippin dam, White River, near Eureka Springs, Ark., to cost \$10,000,000, with new dam and machinery.

Ovens, power equipment, conveying and other machinery will be installed in the four-story addition to be erected by the Junge Baking Co., Joplin, Mo., at Eighteenth and Joplin Streets, estimated to cost \$70,000.

The Common Council, Owasso, Okla., plans the installation of electrically-operated pumping machinery in connection with extensions in the municipal waterworks, to cost about \$25,000. The Holway Engineering Co., Wright Building, Tulsa, Okla., is engineer.

The Ford Motor Co., Highland Park, Mich., has taken options on about 9000 acres in Francois and Washington Counties, Mo., for lead supply for Ford automobiles. A plant will be erected to cost more than \$100,000 with machinery for lead production.

The Brunswick-Balk-Collender Co., 629 South Wabash Avenue, Chicago, manufacturer of talking machines, billiard tables, etc., is considering plans for enlargements in its works at Knoxville, Tenn., primarily for the manufacture of talking machines and parts, with complete assembling department.

The American Bauxite Co., Bauxite, Ark., will install additional equipment at its plant in connection with enlargements to cost \$150,000, including ore machinery, electric power equipment and other apparatus.

The Pacific Coast

SAN FRANCISCO, Oct. 17.

CONTRACT has been awarded by the Emsco Tool Co., Los Angeles, to the Austin Co., for two one-story buildings at Seventieth and Alameda Streets, estimated to cost \$25,000. E. M. Smith is president.

The Deats Sash & Door Co., 1832 East Sixteenth Street, Los Angeles, is having plans drawn for a new one-story plant at Vernon, 100 x 100 ft., estimated to cost \$40,000 with machinery. C. C. Rittenhouse, Wilcox Building, is architect.

Fire, Oct. 9, destroyed a portion of the plant of the Hawley Pulp & Paper Co., Oregon City, Ore., including machine and heater departments, with loss estimated at \$500,000 including machinery. It is planned to rebuild.

The City Council, Seattle, has authorized the sale of a bond issue for \$1,000,000, the proceeds to be used for the municipal light and power department, including extensions and improvements in plant and system.

The Pacific Spring Bed Co., 2331 Fourth Street, Berkeley, Cal., has acquired three acres at Oakland, Cal., and plans the erection of a new factory. It recently arranged for the removal of its works to a building at 800 High Street, Oakland. Austin S. Wickersham is president.

Electric traveling cranes, conveyors, elevators and other equipment will be installed in the new plant to be erected by the Crescent Creamery Co., Los Angeles, on Slauson Ave., consisting of three one and two-story units, estimated to cost \$115,000. A power house will also be erected. Morgan, Walls & Morgan, Van Nuys Building, are architects.

The M. Greenberg Sons Co., San Francisco, has removed its brass foundry and machine works from 225 Beale Street to 765 Folsom Street, where additional equipment will be provided for increase in capacity. The new plant will specialize in brass and bronze castings, brass machined and plated products.

The Weber Showcase Co., 316 South Los Angeles Street, Los Angeles, has purchased 14 acres at Slauson and South Park Avenues for the erection of a new plant. The initial units will provide a total floor space of about 300,000 sq. ft., and are estimated to cost \$500,000 with machinery. A machine shop and power house are included in the plans.

The Consolidated Paper Corporation, Tacoma, Wash., has acquired property at Anacortes, Wash., and will remodel the buildings for a new plant. Considerable additional machinery will be installed. O. H. Fair is president.

The Southern California Edison Co., Los Angeles, has acquired property at Santa Barbara, Cal., for the construction of a new power station, estimated to cost \$150,000 with machinery.

The Yosemite Portland Cement Co., Merced, Cal., is commencing preliminary work on its plant in this section, consisting of a machine shop and stock building, 36 x 145 ft., and other structures. The complete works will cost approximately \$1,000,000 with machinery.

The Galena Hill Mining Co., Orient, Wash., is planning for the installation of electric power and other machinery to replace the equipment at its plant recently destroyed by fire.

The Union Pacific Railroad Co., San Francisco, has awarded a general contract to the Unit Construction Co., San Francisco, for a new engine house with repair department at San Pedro Harbor, Los Angeles, 75 x 175 ft.

The Buckner-Woodward Co., 92-4-6 First Avenue, South, Seattle, Wash., machinery dealer, has a customer in the

market for metal barrel making equipment. It is requested that manufacturers of hydraulic presses, similar to the Logemann Brothers Co., No. 23-P, submit proposals with blue prints, circulars, weights, delivery dates and dealers' discounts, descriptive matter to be in duplicate.

The Coast Enameling & Plating Co., organized as successor to the Los Angeles Enameling & Japanning Co. and the Reliable Enameling & Plating Co., 116 East Ninth Street and 137 West Sixteenth Street, Los Angeles, Cal., plans the erection of a factory. No immediate manufacturing will be done, although this may be undertaken later. R. P. MacKenzie is treasurer.

Canada

TORONTO, Oct. 22.

SALES of machinery and tools for the past week again show improvement over those of the previous week, and according to inquiries before the trade it is the general opinion that business of the present month will correspond favorably with the record month of this year. While the majority of sales and inquiries are for tools in single units, a few lists calling for a half dozen machines have recently made their appearance. Demand from the automotive industry continues good, and during the past week or two inquiries have increased.

The Joliette Steel Products, Ltd., Joliette, Que., will start at once to rebuild the portions of its plant recently destroyed by fire. Additional land has been secured and some extensions will be made. The pattern and cleaning shops, welding department, sand blast and complete converter plant were destroyed and part of the main foundry building. The electrical furnace equipment, transformers, compressor room and machine shop were saved. H. W. Wardell, consulting engineer, Montreal, is in charge of construction and plans for buildings and equipment will pass through his hands. The following equipment will be required: One 44-ft. crane, 3-tons capacity, for cleaning shop, must be electrically controlled from the ground; one 1200 ft., 100-lb. belted air compressor with receiver and motor; pattern shop equipment: grinders, drill presses, sand blast, air hammers, sand rammers, and miscellaneous small tools.

A. Begin, St. Anselme, Que., will purchase equipment for a foundry.

W. M. Scott, Lachute, Que., is in the market for tools and equipment for stone cutting, etc.

The White Rock Mining Co., Coyne, Ont., will purchase sawmill equipment, small stamp mill, etc.

The Canadian National Railways contemplate building an addition to the St. Malo shops at Quebec, to cost \$37,000.

Bids will be received until Nov. 7, by the Department of Trade and Commerce, Ottawa, Ont., through the Deputy Minister, F. C. T. O'Hara, Parliament Buildings, for the erection of a grain elevator and conveyor at Halifax, N. S., to cost \$1,200,000.

The Schneider Packing Co., Kitchener, Ont., is having plans prepared by J. C. Klaehn, industrial engineer, 59 Irwin Street, Kitchener, for an addition to its packing plant to cost \$100,000. Work will start next spring.

D. C. Cotton, 54 Adelaide Street East, Toronto, is preparing plans for a \$55,000 factory to manufacture automobile tops, for Taylor & Loree, care of W. C. Taylor, 911 Bathurst Street, Toronto.

Parson's Pond Oil Co., St. John's, Newfoundland, is in the market for drilling machinery and equipment for an oil field. J. B. Henry is purchasing agent.

Quebec Feldspars, Ltd., Montreal, will purchase crushing, washing and smelting equipment. H. N. Chauvin, 232 St. James Street, Montreal, is interested.

The Newfoundland Milling Co., St. John's, Newfoundland, is in the market for flour mill equipment for a mill at Harbour Grace, Newfoundland. C. B. Jaqua, 453 Park Avenue, Paterson, N. J., is a director of the company.

Ashley Woodburn, 89 Willow Avenue, Toronto, is preparing plans for a refrigerating plant for an abattoir and is asking for information and prices on insulation, waterproofing material and refrigerating equipment.

John Brown, architect, is preparing plans for a sawmill to cost \$100,000 for the C. Cedar & Fir Co., Ltd., Vancouver, B. C., to replace a mill recently destroyed by fire.

N. Blain, Ltd., 68 Casgrain Street, Montreal, manufacturer of vehicles, is in the market for wood and metal-working tools and machinery.

The Three Rivers Harbor Commission, Three Rivers, Que., will purchase machinery for loading and unloading ships. J. J. Ryan is secretary.

The Nichols Chemical Co., 222 St. James Street, Montreal, will purchase compressor and concentrating mill.

The Kenehan Wagon Co., 225 William Street, Montreal, is in the market for shears, drills, etc. K. Kenehan is purchasing agent.

The Ferranti Meter & Transformer Co., 26 Noble Street, Toronto, is building an addition to cost \$30,000.

The Hull Electric Co., Hull, Que., is having plans prepared for a concrete dam and power house to be erected at Aylwin, Que. Walter J. Francis & Co., 260 St. James Street, Montreal, are engineers. The power house will be 68 x 300 ft. and six turbines will be installed.

The Montreal Light, Heat & Power Co., Montreal, is having plans prepared for the erection of a power house at Lachine, Que., to develop 100,000 hp., and cost \$2,000,000. It is expected that work will start this year.

The Dominion Coal Co., Glace Bay, N. S., contemplates the purchase of a turbine to cost \$15,000 to replace the present one at Waterford Lake, N. S.

Work has started on the \$7,000,000 power development project at Rivieres Des Prairies, Que., for the Back River Power Co., 35 Common Street, Montreal. Preliminary work is being done by William I. Bishop, Ltd., 10 Cathcart Street, Montreal. The owners will call for bids on the remainder of the contracts in about a month.

The sash and door factory owned by P. W. Gardiner &

Sons, Harris Street, Galt, Ont., was destroyed by fire with loss to building, equipment, etc., estimated at \$250,000. According to J. E. Gardiner, general manager, work will start at once on rebuilding the destroyed sections and new equipment will be installed.

A syndicate in which J. H. Cook, Lions Head, Ont., is interested has leased 6000 acres in Eastnor Township, Ont., and will drill for oil. W. Shaw is in charge and is receiving prices on equipment, piping, tanks, etc.

The Sheet Metal Products of Canada, Ltd., 111 Lombard Street, Winnipeg, Man., is in the market for power machinery for manufacturing sheet iron airtight heaters.

J. M. McCaw, Nampa, Idaho, city engineer, has plans for a one-story municipal machine and repair shop for the city water and engineering departments.

The Mainland Portland Cement Co., Vancouver, B. C., proposes to erect a cement plant at Popcum, about ten miles from Chillawach, B. C., at a cost of \$1,000,000. The company has secured the Hart & Damask property, which is rich in marl, and it is stated that work will start in the near future.

The Canadian Westinghouse Co., Hamilton, Ont., has awarded the contract for foundation work for a foundry to be erected on Aberdeen Street, to the W. H. Yates Construction Co., 17 Main Street East, Hamilton. B. H. Prack, Main Street East, is the architect.

STEEL AND INDUSTRIAL STOCKS

The range of active steel and industrial stocks from Monday of last week to Monday of this week was as follows:

	Low	High		Low	High
Allis-Chalmers ..	39 1/4	40	Int. Har.	72 1/4	74 1/2
Allis-Chal. pf.	91 1/4	92	Int. Har. pf.	106 1/4	107
Am. B. S. & Fdy. 71	71 1/2	71 1/2	Jones & L'ghlin. 108	108 1/4	108 1/4
Am. B. S. & F. pf. 103	103	103	Lima Loco.	62 3/4	64 1/2
Am. Can.	90 1/4	93 3/4	Midvale Steel ..	24 3/4	2
Am. Can. pf.	106 1/4	106 3/4	Nat.-Acme	8 1/2	9
Am. Car & Fdy.	154 1/4	155 1/4	Nat. En. & Stm. 35	44 1/4	45
Am. C. & F. pf.	120	120	Nat. En. & S. pf. 88	90 1/4	90 1/4
Am. Locomotive. 68 1/4	70	70	N. Y. Air Brake 34 1/4	36 1/4	36 1/4
Am. Loco. pf.	118 1/4	118 1/4	Otis Steel	7 1/4	8
Am. Radiator ..	81 1/4	81 1/2	Otis Steel pf.	45	45
Am. Steel Fdries. 34 1/4	35	35	Pressed Stl. Car 44	48	48
Am. Stl. Fd. pf.	101	101	Pressed Stl. pf.	84	84 1/2
Bald. Loco.	114 1/4	118 3/4	Replodge Steel ..	8 1/4	9
Bald. Loco. pf.	114 1/4	114 1/4	Republic	42 1/4	44 3/4
Beth. Steel	46 1/4	48 3/4	Republic pf.	86 1/4	89
Beth. Stl. 7% pf. 89 1/4	89 1/4	89 1/4	Sloss-Sheffield ..	39 1/2	40 1/2
Br. Em. Stl. 1 pf. 57 1/2	57 1/2	57 1/2	Steel of Canada. 65 1/2	67 1/2	67 1/2
Br. Em. Stl. 2 pf. 15	15 1/4	15 1/4	Transue-Wms. ..	30	30
Chic. Pneu. Tool 80 1/4	80 3/4	80 3/4	Un. Alloy Steel ..	30	30
Colo. Fuel	25 1/4	26 1/4	U. S. Pipe	36 1/4	38 3/4
Crucible Steel ..	57 1/2	60 3/4	U. S. Pipe pf.	78 1/4	82
Crucible Stl. pf.	89	90	U. S. Steel	85 3/4	88 3/4
Deere pf.	61 1/2	63	U. S. Steel pf.	118 3/4	119 1/4
Gen. Electric	170	171 1/4	Vanadium Steel. 27	29 1/4	29 1/4
Gt. No. Ore Cert. 28	29 1/4	29 1/4	Va. I. C. & Coke 52 1/4	54	54
Gulf States Steel 71	75 1/2	75 1/2	Whouse Air Br. 79 1/4	79 1/4	79 1/4
Harb.-Walk. pf. 102	102	102	Y'gstown S. & T. 63 3/4	65	65

Industrial Finance

A petition filed with the Federal Court, Newark, N. J., states that 92 per cent of the creditors of the Newark Metal Works, 560 Ferry Street, with claims aggregating \$300,000, has consented to a reorganization of the company. Plans are now being developed to this end. The company has been in receivership since March last.

Louis J. Castellano has been appointed receiver for the Deline Engineering Co., Inc., 259-63 Norman Avenue; Brooklyn, N. Y., manufacturer of derricks and kindred equipment.

The Consolidated Gas & Gasoline Engine Co., 33 Park Place, New York, has filed a voluntary petition in bankruptcy, with liabilities stated at \$120,220 and assets \$440,039, of which \$439,883 represents unliquidated claims.

George W. Martin has been appointed receiver for the Empire Stamping & Metal Spinning Co., Inc., 138 Mott Street, New York.

The Baltimore Dry Docks & Shipbuilding Co., Baltimore, has filed a petition in the Circuit Court asking that the company be dissolved and that a receiver be appointed to take charge of its affairs. It is stated that the company is no longer actually engaged in the building, repairing and dry docking of vessels.

Profits of the Ford Motor Car Co. of Canada, Ltd., for the year ended July 31, 1923, after all charges for manufacturing and general expenses, including depreciation and taxes, amounted to \$5,106,193, compared with \$5,006,521 for 1922. Deducting dividends of \$1,050,000, as against \$2,100,000 in the previous year, surplus now stands at \$16,594,170, compared with \$12,537,973. Total sales and other income amounted to \$38,556,183, an increase of \$9,282,929 over 1922.

Total output for the year was 70,323 cars and 3395 tractors, compared with 45,000 and 1192 for the previous year.

Net income of the Virginia Iron, Coal & Coke Co., for the quarter ended Sept. 30, amounted to \$170,414, equivalent to \$1.07 per share on the \$10,000,000 in common stock outstanding, after allowing for preferred dividends. In the same quarter last year, the net available for common was \$2.11 per share. Net income of \$528,957 was shown for the first nine months of 1923. This amounted to \$3.41 per share earned on common, against \$1.01 during the first nine months of 1922.

Net earnings of the Sloss-Sheffield Steel & Iron Co. for the nine months ending with Sept. 30 were \$2,153,278, which, after allowing for preferred stock dividends, is equal to \$18.01 a share on the company's 100,000 shares of common stock. Earnings for the third quarter were \$471,856, and for September \$125,394. Due to a drop in pig iron prices earnings for the fourth quarter will show a falling off, yet the company is still operating at a fair profit.

Stockholders of the Penn Seaboard Steel Corporation at a recent special meeting approved a plan for financing the company's maturing 7 per cent notes and the provision for the formation of a new company to take over the company's steel casting plant at Chester, Pa.

Despite the fact that the conditions in the industry have been somewhat untoward, the National Steel Car Corporation, Ltd., Hamilton, Ont., in the fiscal year ended June 30, 1923, showed an operating profit as against a deficit in the previous twelve months. The capital and surplus account of the company as of June 30 last shows net profits of \$142,887, as compared with a net loss for the preceding year of \$79,733.

Business and property of Stroud & Co., manufacturers of road making machinery, Omaha, Neb., will be sold by the Federal Court in bankruptcy at the office of the company on Nov. 1. Arthur C. Thomas is trustee.

Transue & Williams Steel Forging Corporation reports net earnings for the nine months ended Sept. 30 of \$387,000, after taxes.

Net earnings of the New York Air Brake Co. in September were \$249,635, and for the nine months of 1923 were \$2,245,881, which amounts to \$7.43 per share on the 300,000 shares of common. So far in October both sales and profits have been decidedly above those of September. On Oct. 1 current assets were \$7,791,432 and current liabilities were \$432,974.

The Swoyer Brass & Copper Co., Woolworth Building, New York, has been organized by A. P. Swoyer, formerly connected with the Bridgeport Brass Co., Bridgeport, Conn. The company will handle and manufacture a full line of brass and copper in sheets, rods, wire brazed and seamless tubes, iron pipe sizes and condenser tubes, and brass and copper products. A. P. Swoyer is president and T. A. Hammer is secretary-treasurer.

The Jersey Rubber Co., 10 Ames Avenue, Rutherford, N. J., has been incorporated with \$25,000 capital stock to manufacture rubber products. The company has secured a plant, but further details are lacking. William H. J. Ely is one of the heads.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

Iron and Soft Steel Bars and Shapes

Bars:	
Refined iron bars, base price	3.54c.
Swedish charcoal iron bars, base	7.00c. to 7.25c.
Soft steel bars, base price	3.54c.
Hoops, base price	5.19c.
Bands, base price	4.39c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base	3.64c.
Channels, angles and tees under 3 in. x ¼ in. base	3.54c.

Merchant Steel

	Per Lb.
Tire, 1½ x ½ in. and larger (Smooth finish, 1 to 2½ x ¼ in. and larger)	3.60c.
Toe-calk, ½ x ¾ in. and larger	4.40c.
Cold-rolled strip, soft and quarter hard	7.50c. to 8.50c.
Open-hearth, spring-steel	5.00c. to 7.50c.
Shafting and Screw Stock:	
Rounds	4.65c.
Squares, flats and hex.	5.15c.
Standard tool steel, base price	15.00c.
Extra tool steel	18.00c.
Special tool steel	23.00c.
High speed steel, 18 per cent tungsten	75c. to 80c.

Tank Plates—Steel

¼ in. and heavier	3.64c.
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Sheets

	Per Lb.
Blue Annealed	
No. 10	4.59c.
No. 12	4.64c.
No. 14	4.69c.
No. 16	4.79c.

Box Annealed—Black

	Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
Nos. 18 to 20	4.30c. to 4.55c.	4.85c.
Nos. 22 and 24	4.35c. to 4.60c.	4.90c.
No. 26	4.40c. to 4.65c.	5.00c.
No. 28	4.50c. to 4.75c.	
No. 30	4.70c. to 4.95c.	
No. 28 and lighter, 36 in. wide, 20c. higher.		

Galvanized

	Per Lb.
No. 14	4.60c. to 4.85c.
No. 16	4.75c. to 5.00c.
Nos. 18 and 20	4.90c. to 5.15c.
Nos. 22 and 24	5.05c. to 5.30c.
No. 26	5.20c. to 5.45c.
No. 27	5.35c. to 5.60c.
No. 28	5.50c. to 5.75c.
No. 30	5.95c. to 6.20c.
No. 28 and lighter, 36-in. wide, 20c. higher.	

Welded Pipe

Standard Steel			Wrought Iron		
	Black	Galv.		Black	Galv.
½ in. Butt.	—41	—24	½ in. Butt.	—4	+19
¾ in. Butt.	—46	—32	¾ in. Butt.	—11	+9
1-3 in. Butt.	—48	—34	1-1½ in. Butt.	—14	+6
2½-6 in. Lap.	—44	—30	2 in. Lap.	—5	+14
7-8 in. Lap.	—41	—11	2½-6 in. Lap.	—9	+9
9-12 in. Lap.	—34	—6	7-12 in. Lap.	—3	+16

Steel Wire

	Per Lb.
Bright basic	4.75c. to 5.00c.
Annealed soft	4.75c. to 5.00c.
Galvanized annealed	5.40c. to 5.65c.
Coppered basic	5.40c. to 5.65c.
Tinned soft Bessemer	6.40c. to 6.65c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet	17½c. to 18½c.
High brass wire	18 c. to 19 c.
Brass rods	15¼c. to 16¼c.
Brass tube, brazed	25½c. to 27 c.
Brass tube, seamless	22½c. to 23½c.
Copper tube, seamless	24 c. to 25 c.

Copper Sheets

Sheet copper, hot rolled, 20¼c. to 21¼c. per lb. base.	
Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.	

Tin Plates

Bright Tin	Grade	Grade	Coke—14 x 20	Prime	Seconds
	"AAA"	"A"	80 lb.	\$6.55	\$6.30
	Charcoal	Charcoal	90 lb.	6.65	6.40
	14x20	14x20	100 lb.	6.75	6.50
IC.	\$12.55	\$10.70	IC.	7.00	6.75
IX.	13.95	12.55	IX.	8.25	8.00
IXX.	15.55	13.75	IXX.	9.50	9.25
IXXX.	17.10	15.30	IXXX.	10.75	10.50
IXXXX.	18.85	16.80	IXXXX.	12.00	10.75

Terne Plates

	8 lb. coating, 14 x 20
100 lb.	\$7.00 to \$8.00
IC	7.25 to 8.25
IX	8.25 to 8.75
Fire door stock	9.00 to 10.00

Tin

Straits pig	44c.
Bar	48c. to 50c.

Copper

Lake ingot	16c.
Electrolytic	15½c.
Casting	15c.

Spelter and Sheet Zinc

Western spelter	7¾c.
Sheet zinc, No. 9 base, casks	10¼c. open 11c.

Lead and Solder*

American pig lead	8¼c. to 8¾c.
Bar lead	10c. to 12c.
Solder ½ and ½ guaranteed	31c.
No. 1 solder	29c.
Refined solder	25c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.	75c. to 90c.
Commercial grade, per lb.	35c. to 50c.
Grade D, per lb.	25c. to 35c.

Antimony

Asiatic	9c. to 9½c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.	36c.
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Old Metals

The market continues depressed and business is quiet. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy crucible	10.75
Copper, heavy wire	10.25
Copper, light bottoms	8.75
Brass, heavy	5.75
Brass, light	4.75
Heavy machine composition	8.50
No. 1 yellow brass turnings	5.75
No. 1 red brass or composition turnings	7.25
Lead, heavy	6.00
Lead, tea	5.00
Zinc	4.00
Cast aluminum	15.00
Sheet aluminum	15.00